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## THE DEVELOPMENT OF MODERN THERAPEUTICS.<sup>1</sup>

By THE LATE OTTO HIRSCHFELD,  
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The dictionary definition of therapeutics is "the science and art of alleviating or curing disease". Therapeutics may be either rational—that is, we have sufficient knowledge of the disease and of the action of the remedy to know why it should be beneficial—or empirical, when our knowledge is insufficient to tell us how the remedy acts, and it is used only as the result of long practice or because it is efficient. This definition of therapeutics is a very wide one, and I propose to discuss with you tonight only the development of drugs and allied substances, though in passing I should like to mention the modern knowledge of dietetics.

When I commenced my medical course in 1917, Osler's "Text Book of Medicine" was the standard text-book, and even up to the present day in sundry revisions by various authors it has remained an example to all other text-book

writers. Osler was one of the greatest physicians of all times; yet the distinguishing character of his book was that, while he advocated general measures which still largely govern the management of the sick, the most striking feature of his description of the uses of drugs was his therapeutic nihilism. That is, he mentioned most drugs only to condemn them. I can well remember our lecturer in therapeutics saying that if he had to choose to practise and was given only a limited number of drugs, he would be perfectly satisfied if he could practise medicine with morphine, aspirin, sodium salicylate, potassium iodide, digitalis, thyroid extract and a satisfactory laxative, together with diphtheria antitoxin and tetanus antitoxin, quinine for use in malaria, and the organic arsenicals for use in syphilis and other allied parasitic diseases.

In 1954 the centenary of Paul Ehrlich's birth was celebrated, and rightly so, for his is one of the greatest names in the history of the development of modern treatment. Ehrlich adopted the name "chemotherapy" to define the use of synthetic chemical substances which would act specifically on infective organisms. With the discovery of bacteria, their role in the causation of disease and their effect on man, it was found that in some diseases the body had a natural defence mechanism and produced an antitoxin. This soon led to the manufacture of antitoxins.

<sup>1</sup> Inaugural address delivered at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.

Unfortunately, only in some diseases was this possible. The most efficacious, of course, is diphtheria antitoxin. This has enormously reduced the death rate in diphtheria, and a further step forward, the discovery that prophylactic injections could be given against diphtheria, has led to a widespread reduction in the incidence of the disease. The tetanus organism also produces an antitoxin, and while this has not been quite so successful as diphtheria antitoxin, still, used prophylactically, tetanus antitoxin has enormously reduced the incidence of tetanus. This is particularly so in warfare.

Another profound success of the bacteriologist has been the discovery that vaccines could give protection against certain diseases. The outstanding example is against the typhoid group of organisms. In the South African War more men died of typhoid than of war wounds and injuries. With universal prophylactic use of the vaccine, the incidence of typhoid in the two great World Wars was reduced to a minimum.

The natural history of many diseases and disease-producing organisms was worked out, and it was found that the organism of typhus was transmitted by the body louse. In the first World War, all sorts of schemes for "delousing" were evolved, and they had some considerable success; but in spite of this, enormous epidemics of typhus occurred. With the discovery of the efficacy of DDT powder in killing insects, "delousing" became a scientific possibility, and in the second World War the use of DDT reduced the incidence of typhus enormously. We shall return to the treatment of typhus later.

Jenner's discovery of smallpox vaccination belongs in a different category. It had long been known that dairymaids and people working amongst cattle had beautiful complexions, and it was a tradition of English countryside life that an attack of cowpox gave protection against smallpox. There is even a record of a farm hand's having successfully inoculated his wife with cowpox as a protection against smallpox. Jenner, instead of jeering at folk-lore, investigated the truth of the matter. In 1780 he became convinced of the truth of the tradition that an attack of cowpox gave protection against smallpox, and introduced vaccination against smallpox. This type of vaccination is an example of producing immunity to a disease by giving a person a mild attack of the disease. Jenner failed to recognize the necessity of revaccination at intervals. Actual inoculation of people with pus from a smallpox pustule had been traditional in the east for many centuries, and it was introduced into England in 1770 by Lady Mary Wortley Montague; but such inoculation was very dangerous and had only a limited application. It was, of course, entirely supplanted by Jenner's method of inoculation with cowpox.

In the past, syphilis has probably been the greatest scourge of mankind. Countless types of diseases were caused by it; in my young days the medical wards of any hospital were one-third filled with diseases of the heart and nervous system due to it, and the outlook for the patient was grim. Until 1905, the causative agent of syphilis was unknown and therapy was completely empirical. Marcus Cumanus, in 1495, discovered that mercury had some effect on syphilis. The treatment of syphilis has always been closely linked with that of trypanosomiasis—that is, the sleeping sickness of Africa. Many drugs which were first tested on animals infected with trypanosomes were subsequently used for the treatment of syphilis. Livingstone, the missionary explorer, used inorganic arsenic to treat sleeping sickness in horses, and Bruce first showed that arsenic caused the trypanosome parasite to disappear from the blood. Ehrlich at first worked on various dyes in the treatment of trypanosomiasis, but later decided that the organic arsenicals would be most effective. In 1904, working with Shiga, he found that atoxyl, an organic arsenic compound, was effective in eradicating trypanosome infections. Ehrlich then turned to the use of the inorganic arsenicals in syphilis. The object was to find something that would quickly kill the parasites in the blood before they had time to produce secondary and tertiary effects. Ehrlich eventually intro-

duced arsphenamine or, as he called it, 606 or salvarsan—so-called because he hoped that it would produce the salvation of man at least as far as syphilis was concerned. Arsphenamine was very difficult to use, and he later introduced neoarsphenamine or 914. The number 606 was used because it was the six-hundred-and-sixth drug that he had experimented with; similarly with 914. The introduction of neoarsphenamine revolutionized the outlook of sufferers from syphilis, and the incidence of tertiary manifestations of the disease dropped enormously; but neoarsphenamine had many toxic reactions in the human, and these were always a matter for care and for fear.

Laveran and Ehrlich both made the interesting discovery that parasites could become resistant to therapy. This development of resistance is of great importance in our use of the antibiotics, particularly in the use of penicillin against the organism of pus, the staphylococcus. Ehrlich postulated a side-chain theory to explain the action of his parasitocidal drugs. He suggested that the drug hooked on to the organism and eventually killed it. This theory of side-chain was at first adopted with great enthusiasm, only to be scoffed at with even greater enthusiasm for many years; and yet the people who have done work on the action of penicillin and similar substances have confirmed that they act by interfering with the nutrition of the organism; that is, the organism takes up the sulphonamide drug or the antibiotic in preference to its normal food and is thereby killed. This is not a very far stretch from Ehrlich's theory.

Towards the end of the nineteenth century, Koch, another bacteriologist, attempted to cure septicæmia in animals by means of intravenous injections of drugs, and tried most of the disinfectants then known without success; this line of research seemed to be a complete failure. Yet in 1935 the long history of failure was terminated by the discovery that members of the sulphonamide group, though feebly disinfectant in the test tube or laboratory, produced a remarkable action in the living organism.

Sulphanilamide was first synthesized in 1908, and sulphonamide dyes were introduced in 1909. For many years their bactericidal action had been investigated by German and American workers. The dye "Prontosil" was synthesized in 1920, and in 1933 its clinical action in curing a boy of peritonitis was reported by Forster. In February, 1935, Domag published experimental work carried out in 1932 and reports of clinical results obtained since 1933. This publication caused world-wide interest. The efficacy of the sulphonamide group was not found out mainly because it was comparatively ineffectual in the test tube and in the laboratory, and it was only when an attempt was made to treat disease with it that its profound effect was discovered. This disparity between the results in the laboratory and those obtained in the treatment of the disease has always been a bugbear. Sometimes it works the other way, and a drug or substance which is most effective in the laboratory is found to be either ineffective in disease or so toxic as to be unusable. With the introduction of "Prontosil", it was quickly found that this substance was broken down in the body to sulphanilamide, and from this point, with various chemical modifications of the sulphanilamide group, a large number of sulphonamide drugs were introduced. Sulphanilamide itself was very effective against the streptococcus and in diseases caused by it—septicæmia particularly, and also puerperal fever.

A newer sulphonamide drug, sulphapyridine or "M & B 693", was found to be effective against the organism of pneumonia and against meningococcal meningitis. The great disadvantage of "M & B 693" was the terrible nausea and vomiting which it caused. Later, other compounds were introduced, in particular sulphadiazine and its derivatives sulphamerazine and "Sulphamesathine". While the sulphonamide drugs have fallen very much into disuse, they are still enormously effective against streptococcal, pneumococcal and meningococcal infections, and indeed, in meningococcal meningitis, sulphadiazine is still the drug of choice. Other sulphonamide drugs are specific against bacillary dysentery.



Work is still going on with the sulphonamide group, and I feel quite sure, especially with the widespread development of resistance against the antibiotics, that a considerable part of the future of treatment in infectious diseases will lie in the discovery of new and more effective sulphonamide drugs. The introduction of the sulphonamide drugs represents one of the great landmarks of medicine. The only landmark comparable with it was Lister's discovery of the principles of antiseptics. It is now nearly twenty years since the sulphonamides were introduced, and doctors of the younger generation will have no idea of the horrors and dangers of infectious diseases prior to their introduction. Before I leave the discussion of these drugs, I should say that the newspapers recently have had many references to the use of tablets instead of insulin in the management of diabetes. These tablets are a sulphonamide drug; how they act has so far not been determined, but elderly patients with mild diabetes have been successfully managed with them, together with dietetic restriction. The drug has been developed in Germany, and trials of it are being made in England and America. One unknown factor is whether the drug will have any toxic side effects such as occur with other sulphonamide drugs.

We had scarcely become used to the wonder of our new therapeutic weapon when news came of the discovery of penicillin, and though the history of this is well known, I feel I must reiterate it. In 1928, Sir Alexander Fleming was working on staphylococci, which he was growing in cultures in the laboratory. These cultures are grown on culture media in flat dishes, and so profuse is the growth that it can be seen on the surface of the culture media. One day Fleming noticed that in several of his dishes the staphylococcal cultures had been lysed—that is, the cultures had disappeared, owing to having been apparently killed or digested. Fleming realized that something quite extraordinary had occurred. On examining the affected plates, he found that there was a profuse growth of a green mould. It was *Penicillium notatum*, the common green mould of bread. He proceeded to investigate fully this product of penicillium which was called later penicillin. Fleming found that it was an antibacterial substance which not only inhibited the growth of many disease-causing bacteria, but also actually killed them. He also was able to differentiate sensitive from insensitive organisms. He made many attempts either to find the active substance or to produce penicillin in a form in which it could be used for the treatment of disease. However, all his attempts were unsuccessful. Meanwhile, at Oxford, Sir Howard Florey, Dr. Chain and other workers had been endeavouring to produce curative substances from various bacteria. Their experiments had been successful up to a point, but all the antibiotics which they produced were far too toxic for use. This group of workers proceeded to investigate penicillin further, and by a simple alteration in the techniques which Fleming had been using they were able to produce penicillin. Florey gave a lecture in Australia, and it was the most fascinating lecture I have ever heard. He described how their early small quantities of penicillin were used to treat mice which they infected with all sorts of diseases. Whenever the organism was sensitive to penicillin, then they could give the mice millions of times what previously had been a lethal dose of an organism and penicillin prevented the development of disease or, if it did develop, it cured it. It had already been shown that most of the penicillin is excreted through the kidneys in the urine. Florey had to collect the urine from his experimental mice and recover his penicillin for use again. It was only a step from using mice to endeavouring to treat disease in humans, and penicillin fulfilled its promises. Florey's next difficulty was to manufacture it commercially and in large enough quantities. He described the difficulties they had—they used old unused brewers' vats and all sorts of makeshift machinery. It was in the early years of the war, when the whole of British industry was already tied to the war effort, and it was extraordinarily difficult to manufacture penicillin on a commercial scale in England. Florey then sought the help of the American drug manufacturers, and soon penicillin as a curative agent was a reality. When it

was first introduced it was enormously expensive. I can remember treating an early patient here with it, at a cost of some £60 for three or four days' treatment. Now, of course, penicillin is extraordinarily cheap, and enough to treat a patient with pneumonia costs only a few shillings.

The discovery of penicillin seems like a miracle. In spite of the enormous number of antibiotics which have subsequently been developed, penicillin is the least toxic of them all. It makes us humble to think of the enormous good fortune for mankind of that growth in Fleming's laboratory, and also thankful that it was observed by a scientist who realized the importance of what had happened.

Penicillin was effective against a wide range of organisms, in particular against the organism of pneumonia and against staphylococci, which cause amongst other things common boils, osteomyelitis and other dread diseases—though the effectiveness of penicillin against staphylococci, alas, has not lasted. Whilst most other organisms do not develop resistance to antibiotics, the staphylococcus does. Particularly is this so in hospitals, and the miracle effect of penicillin in infections due to the staphylococcus is now not present. Penicillin was also very effective against the meningococcus, the gonococcus and, above all, against the organism causing syphilis; it is now the drug of choice in the treatment of syphilis, and is slowly but surely eradicating syphilis as a social problem.

With the discovery of penicillin a great impetus was given to the search for antibacterial substances among all the fungi and moulds, and over 150 antibiotics have been isolated and purified. Streptomycin was the first drug for use against tuberculosis which was both effective and comparatively non-toxic, but streptomycin resistance very soon developed in the tuberculosis organism in 60% to 70% of cases, and for a time it seemed that streptomycin must be reserved only for the treatment of emergencies. Meantime, other workers had discovered that para-amino-salicylic acid, or PAS as it is commonly called, did have, in the test tube, a great antituberculous effect; but its action in sufferers from tuberculosis was found to be of limited value—actually it was very disappointing. However, when PAS was given in conjunction with streptomycin, it was suddenly found that we had an exceedingly valuable combination. The great virtue of PAS is that it affects the development of resistance to streptomycin to a great extent, and the figure of resistance was reduced from 70% to about 50%. In time it was discovered that isoniazid, a portion of the vitamin B complex, also was useful in the treatment of tuberculosis. All of you will remember the fanfare which greeted the first announcement, and the articles in the lay Press made extravagant claims for the drug. Later, trials suggested that it was nothing like so good as had at first been thought. One of the interesting features of its use was that the patients all seemed to gain in weight. Isoniazid fell into considerable disrepute, being used only in isolated cases, but its value is now being more and more recognized, and in the treatment of most sufferers from tuberculosis the combination of streptomycin, isoniazid and PAS is given. I think one can safely claim that tuberculosis is in many cases curable, and that these combinations of drugs do hold out a possibility of eventually wiping out tuberculosis. In passing, I must pay tribute to the close cooperation between the Commonwealth and State Governments, which is manifested by the erection by the Commonwealth Government of hospitals all over Australia, while clinics for tuberculosis have been established by all the State Governments. Tuberculosis, which has for long been one of the scourges of mankind, is now well on the way to adequate control, and we can look forward to the ultimate wiping out of the disease.

The group of compounds closely related to sulphonamides—namely, the sulphones—were found in the laboratory to have very strong antituberculous activity. They were tried in man, but owing to their great toxicity their use had to be abandoned. However, the organism which causes leprosy is one closely related to the tuberculosis organism, and sulphones, and in particular "Promin", have been widely used in the treatment of leprosy. Here the

toxic effect has to be tolerated, because the disease is inevitably progressive and ultimately fatal, so that it is worth using any drug with curative effect. The use of the sulphonamides has led to an enormous improvement or to cure in a large number of cases of leprosy.

To return to our moulds: In 1948, Bartz isolated chloramphenicol from a culture of *Streptomyces venezuelae*, so called because the first specimens of this species were obtained from a sample of soil brought from Venezuela. The chemical structure of chloramphenicol was much simpler than that of other antibiotics, and soon after its discovery it was synthesized and this represented a great advance. Chloramphenicol was the first of the broad-spectrum antibiotics—broad-spectrum because it was effective against a much wider range of organisms than penicillin. It is highly effective against the rickettsia which causes typhus, and against Rocky Mountain spotted fever—one of the most terrible epidemic infectious diseases in the United States—and it is also effective against typhoid and paratyphoid infections. Chloramphenicol represents a noteworthy therapeutic advance in the treatment of typhoid.

"Aureomycin", derived from *Streptomyces aureofaciens*, was next produced. It has a very similar range of activity to chloramphenicol, except that it is not so effective against the typhoid organism.

Next it was found that *Streptomyces rimosus* produced a valuable antibiotic, "Terramycin". "Terramycin" had a similar range of activity to "Aureomycin".

Later, the structure of "Aureomycin" and "Terramycin" was worked out, and it was found that they both were compounds of tetracycline. Tetracycline itself was found to be quite as effective as, or possibly more effective than, either "Aureomycin" or "Terramycin", and now it has come into widespread use in medicine.

One of the most interesting antibiotics, neomycin, has a wide range of activity; but when given by injection it causes acute nephritis, and therefore it cannot be used. However, recently it has been found that when applied locally it is exceedingly effective against many organisms, and it has been used in the nose to prevent the occurrence of droplet infection which is still a great worry in hospitals, particularly in maternity hospitals. At present, extensive trials of this substance are being made. My own experience of its local use suggests that it is of considerable value in certain types of chronic pus infections.

If I have dwelt for a long time on the history of the discovery of antibiotics, the importance of the subject warrants it; these substances are effective against pneumonia, against most types of septicemia, against subacute bacterial endocarditis, against typhoid fever, against typhus, against Rocky Mountain spotted fever, against meningitis, and against all venereal disease, and with truth it can be said that we are well on the way to the conquest of infectious diseases.

The story of vitamins is so well known that I will only touch on it briefly here. Since mankind first started making sea voyages it has been known that an adequate supply of fresh fruit and vegetables is essential to health, and early sea voyages were a constant fight against the scourge of scurvy. As early as 1600 it was known that lemon juice was successful as an antiscorbutic, and Lind, in a book published in 1753, showed that the disease could be prevented and cured by the administration of lemon juice. Captain Cook on his numerous voyages kept his crews in perfect health, a feat that had never before been accomplished.

Vitamin C—that is, ascorbic acid—was found to be the scurvy-preventing factor, a deficiency of which causes scurvy.

Beriberi was a curse of all eastern rice-eating countries and, in the 1880's, 40% of the personnel of the Japanese Navy were affected. Takaki became convinced that the disease was caused by errors in diet, and he decided that it was due to using polished rice. He insisted on the use of the roughage from rice, and immediately beriberi as a disease started to disappear. Later the active principle,

vitamin B<sub>1</sub>, was isolated, and with the discovery of the whole vitamin B group, enormous fields of therapy in medicine were opened up.

Nicotinic acid is portion of the vitamin B complex and to a deficiency principally of it, but also of other B group vitamins, is due pellagra, a very serious and widespread disease amongst the poorer classes in the southern States of the United States, in India and in Egypt.

Pteroylglutamic acid is also part of the vitamin B complex. It plays an essential part in the maturation of the red blood corpuscles. And here we come up against an interesting piece of traditional medicine. Those of you who are of an older generation will remember the fad there was for sour milk—people carried around tins containing sour milk and *Bacillus bulgaricus*. It was called Bulgarian milk. Actually, this milk produces a relation of folic acid. Folic acid is of great use in certain types of deficiency diseases, particularly tropical sprue.

Another portion of the vitamin B complex, vitamin B<sub>12</sub> or cyanocobalamin, has now supplanted all other substances for the treatment of pernicious anemia. Pernicious anemia had always been an inevitably fatal disease until, in 1926, Minot and Murphy found that, by feeding large quantities of raw liver to patients with pernicious anemia, they produced rapid and remarkable relief of symptoms of the disease. Various workers isolated the active part of liver, and gradually purified liver extracts were produced, which enabled people with pernicious anemia to live a normal life provided adequate dosage was used. It is only in recent years that it has been worked out that vitamin B<sub>12</sub> is the actual active factor in these liver extracts. Strangely enough, the substance closely allied to vitamin B<sub>12</sub> is produced by our old friend the streptomyces.

The role of vitamin D in preventing rickets is well known to all of you, and the discovery of the effect of vitamin D represented an enormous wiping out of illness amongst children, especially in colder countries.

I turn now to the story of the internal secreting glands. Goitre has been known since classical times. It is known that the Greeks treated this condition with the ashes of sponges which contain iodine, and it was established that goitre, cretinism and myxedema were associated with deficiency of iodine in the soil. In 1882, Sir Victor Horsley proved the thyroid to be a gland of internal secretion, deficiency of which caused cretinism and myxedema. In 1891, Murray showed that an injection of an extract of the thyroid could cure myxedema, and soon afterwards it was found that equally good results could be obtained by oral administration of dry thyroid. With this knowledge of the effect of internal secretions, great impetus was given to research work. It was found that deficiency of the pancreas caused diabetes, and that it was an internal secretion of the pancreas that was the actual controlling substance which was deficient in this disease. Banting and Best, in 1921, produced an active extract from the pancreas, which they called insulin. In pre-insulin days the average length of life of a diabetic from the time of diagnosis to death was two years. Nowadays, with proper control, a diabetic's prospect of life is as good as that of a normal man. The original insulin had to be given three times a day. Various modifications have been discovered—perhaps now we have too rich an offering of insulins; but suffice it to say that an insulin that needs to be given only once a day now is available for almost all patients. Moreover, the dietetic management of diabetes also has changed vastly. Formerly a complete starvation diet was thought best; but now a diabetic patient has a large and generous mixed diet, with some carbohydrate restriction, but nothing like that which was necessary long ago. Recently we have seen the discovery of one of the sulphonamide drugs, which does seem to have a definite effect, especially in elderly diabetics. It is too soon to know its precise value; whether it will have toxic effects that render its use inadvisable we do not know, but it will be a tremendous boon to diabetics if they can take a tablet instead of having to have their daily injection.

The various sex hormones were next discovered; they were frequently synthesized, or simpler compounds which



had the same effect were discovered, and these made possible the treatment of many disorders of women. But one of the most incredible features of these substances is that it has been found that in cancer of the prostate in men, stilbestrol, a synthetic oestrogen, has a most extraordinary effect, frequently causing retrogression of both the primary and the secondary growths. With this promising line of investigation it was hoped that other types of malignant disease would respond to glandular therapy. So far, however, no such spectacular results have been achieved; but at least this line of work does show that there can be a product which has a mastery over cancer.

The adrenal gland was also investigated. Early it was found that adrenaline, a natural secretion of the medulla of the adrenal gland, had a marvellous effect in asthma or in the violent spasms of asthma; adrenaline was also found to have many other uses in medicine, and it is still of great value in the treatment of asthma. Various hormones were known to be excreted by the cortex of the adrenal gland, in particular desoxycorticosterone, which had curative effect in Addison's disease, and which, when given by implantation of crystals under the skin, enabled a sufferer from Addison's disease to lead a comparatively normal life. But the greatest of all the derivatives is cortisone, and the history of the discovery of cortisone is again an amazing story.

Kendall and others had noticed two interesting facts: that patients with rheumatoid arthritis, during pregnancy, seemed to be very much better; and also that patients with the same disease, when they became jaundiced, improved very much. Starting from this, they finally discovered cortisone, and cortisone can be synthesized from one of the bile acids.

Cortisone is of great value in the treatment of rheumatoid arthritis, yet its discovery led, after an adequate and proper therapeutic trial, to the conclusion that our old friend aspirin, given in adequate doses, had almost as good an effect. Cortisone also has a marked effect in sundry hideous skin diseases which previously had been quite incurable. It also acts like magic in some cases of asthma. Above all, the discovery of cortisone suggests that we are on the verge of discovering substances which can modify all illness.

Anticoagulant drugs now play a very large part in the treatment of such conditions as coronary thrombosis and thrombosis (that is clotting) in peripheral veins, and in the prevention of post-operative tragedies, and it is intriguing to know that the discovery of one of the important anticoagulants, dicoumarol, arose from the observation of Schofield in 1922 that cattle developed a curious haemorrhagic disease after eating spoiled sweet clover hay.

I could go on endlessly with this recital of new discoveries, but I think I have told you enough tonight to show how far we have come from my statement at the beginning that I was brought up in the days of therapeutic nihilism. Since then discoveries in all the fields which I have mentioned have given us weapons to fight disease, and now the main disease for which we have to find a cure is old age and the degeneration of old age. And even in this field we have faint indications of substances which help us in this problem.

### SPRUE.<sup>1</sup>

By R. A. DOUGLAS,  
Townsville, Queensland.

SPRUE is a disease of unknown aetiology. The clinical features of the average case are an aphthous stomatitis, fatty diarrhoea and perhaps vomiting, severe emaciation and anaemia. The anaemia is megaloblastic in type. In some cases vitamin B<sub>12</sub> will produce a rapid and complete

restoration of the patient to apparent health. In all cases folic acid will produce this result.

The disease is essentially limited to tropical and sub-tropical climates, or it may occur in persons who have lived in such climates. However, it does not occur in tropical Africa. Even in countries where it occurs it is typically a disease of certain localities. It is particularly common throughout South-East Asia, and yet even here it is stated to be unknown in Singapore, yet fairly common in Hong Kong. All authorities are agreed that it is typically a disease of Europeans and is extremely rare in the dark-skinned native populations.

In North Queensland the disease has been present apparently since the early days of European settlement. It was once quite common, and we find Breinl and Priestley writing as follows in 1917 from the then Institute of Tropical Medicine in Townsville: "Amongst the tropical diseases occurring in North Queensland sprue plays an important role." They mention having seen patients from Cairns, Innisfail, Ingham, Townsville, Ayr, Proserpine and Mackay. Cilento, writing in 1942, stated that the disease was then very rare. At the present time it is still rare in Europeans; I have seen three cases in the last three years, and I think most practitioners rarely see a case these days. However, although there is no previous record of the disease in Australian aborigines, over the past two and a half years I have seen ten cases of what I regard as being typical sprue in aborigines. There are, in addition, another four cases which were incompletely investigated, but which I am sure were cases of sprue. Six cases were from Palm Island Settlement, one case was from Yarrabah Mission near Cairns, two were from Hopevale Mission at Cooktown and one was from Mona Mona Mission near Kuranda.

The average age of the patients was twenty-eight years. The sexes were equally divided. All patients lost much weight, and most had a history of diarrhoea. Aphthous stomatitis was present in eight cases. The faecal fat value was increased in six of the nine cases in which it was estimated. The peak of the oral glucose tolerance curve was diagnostically low—i.e., less than 40 milligrammes per 100 millilitres in six of the eight cases in which it was estimated. X-ray examination of the small intestine with a barium meal was carried out in nine cases and the "deficiency pattern" was present in eight. A gross degree of anaemia was present in all cases; seven patients had a haemoglobin value of less than 4.0 grammes per centum. Megaloblastic marrow was present in all cases. Occasionally thrombocytopenia and leucopenia were also present. A histamine test meal examination showed the presence of free hydrochloric acid in the stomach in five out of nine cases. The serum calcium content was slightly low in four cases. So far the features are typical of sprue. However, it was noticed that all these patients were febrile when first examined, and the fever gradually subsided with treatment. Also, in two cases the spleen was initially palpable. Fever and splenomegaly are not described in sprue, and I think that in these cases they were due to the extreme level of anaemia present before advice was sought. These two features are diagnostic "red herrings" if one is not aware of them. Another feature which is not described was the presence of stippled, bluish-black, pigmented patches on the tongue in four cases. While similar pigmentation is frequently seen in healthy aborigines, in these cases it seemed to become less pronounced after treatment, and may be analogous to the increased cutaneous pigmentation described as being present in Europeans with the disease. Its presence may enable one to suspect sprue.

Four patients responded to treatment with vitamin B<sub>12</sub>. In the other five cases in which it was used there was no response at all; but there was a full response to folic acid. Vitamin B<sub>12</sub> was tried initially purely as an investigational measure; it is reasonably certain that all patients would have responded to folic acid.

Thus sprue must be fairly common and widespread among aborigines in North Queensland. Folic acid will remove all symptoms and result in an apparently complete return of the patient to normal. It is necessary for all those looking after aborigines to bear the condition in mind, and so avoid such gross deterioration as may lead to death.

<sup>1</sup> Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.

The remarkable response to folic acid has led Suarez and other American authors to the belief that the disease is entirely a deficiency disease. This view is maintained in current American textbooks. The British view, as exemplified by Manson-Bahr, is that the disease is probably a virus disease affecting the whole intestinal tract, of a type similar to *herpes simplex*, characterized by latency with exacerbation from time to time, and leading to secondary vitamin deficiency. I think the known facts would favour the British view. Whilst it is probably true that most of our patients were eating a deficient diet, it is also true that the sanitation of the aboriginal settlements is poor, and excremental disease is common amongst them. Perhaps improved sanitation has led to virtual disappearance of the disease in the European population. Europeans who contracted the disease in the East were usually eating an adequate diet, and recurrences of the disease were common on their return to Europe, perhaps years later. The absence of the disease from Africa is a stumbling block to the pure deficiency theory.

You will notice that I call the disease sprue, and not tropical sprue. The terms tropical and non-tropical sprue arose in the 1930's, when it was thought that classical sprue and idiopathic steatorrhea were one and the same disease, and that there was perhaps no such thing as the disease confined to warm climates. However, it is now abundantly clear that most cases of so-called non-tropical sprue are really cases of coeliac disease continuing into adult life.

### MATERNAL OBSTETRIC INJURIES IN GENERAL PRACTICE.<sup>1</sup>

By I. CHENOWETH,  
Mackay, Queensland.

In Queensland, obstetrics is largely the province of the general practitioner, whether in private or in hospital practice. In the five-year period between the beginning of 1950 and the end of 1954, there were 151,591 live births registered in Queensland, of which 53,185 were in the metropolitan area. It is probable that some patients outside the metropolis were confined by specialists in obstetrics. It is also probable that many in the metropolitan area were confined by general practitioners. It is safe to assume that at least 80% of confinements in Queensland are conducted by general practitioners, and that automatically, by sheer weight of numbers, the majority of maternal obstetric injuries occur in general practice. If we are to reduce the incidence of maternal injuries, it must be through the general practitioners. It is not known whether maternal obstetric injuries are more prevalent in general practice than in obstetric institutions with specialist care; but it can be demonstrated that maternal and foetal mortality is highest in those areas where there is scanty, scattered or absent medical care.

Maternal injuries may be fatal or non-fatal. The fatal injuries are capable of some statistical analysis, but the non-fatal ones are very difficult to evaluate. Figure I shows the statistical boundaries of Central and North Queensland on which the tables in this paper are based.

Table I shows the stillbirths, neonatal death rates and maternal death rates per 1000 births in each statistical division.

It will be noted that there is no great variation in the stillbirth rates throughout Queensland, with the exception of the Peninsula area. The same observation applies to the neonatal death rate.

The total foetal wastage is expressed as a paranatal death rate. The general rate is slightly higher than for the rest of Australia. The high rates in the inland area, such as Far Western and Peninsula, have been offset by the small numbers of patients confined there. To quote from the

Government Statistician's report on infantile mortality in Queensland: "Rates of Neonatal mortality in Queensland were as low as the Australian average for all principal causes except Birth Injuries and Prematurity."

If foetal wastage due to these two causes is at a high rate, I consider it probable that maternal injuries, either local and associated with foetal birth injuries, or general and associated with prematurity, are also occurring at a high rate.

### FATAL MATERNAL INJURIES.

It is in the rates for maternal mortality that the greatest differences are occurring, and it is only the better results in the southern parts and the metropolitan area that have reduced the State figure to 1.1 deaths per 1000 births, live and otherwise. The Far Western and Peninsula figures are the highest; but the small total numbers—only six maternal deaths—have not affected the State average very much.

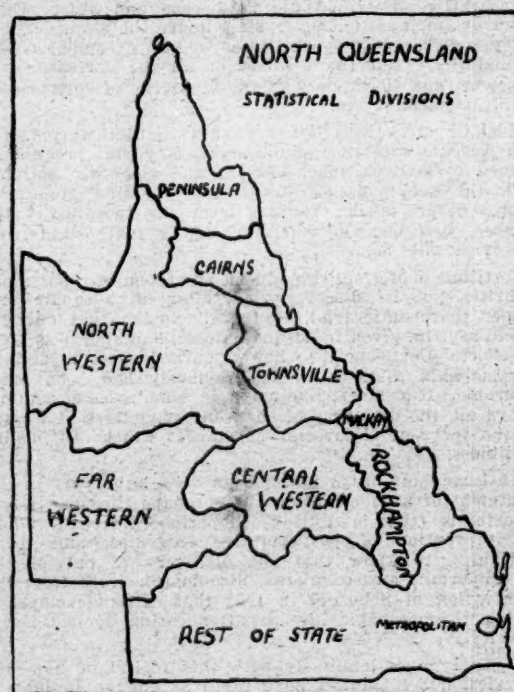


FIGURE I

Table II shows the causes of maternal deaths in this five-year period; they have been obtained from the Government Statistician.

If we are to reduce these fatal maternal injuries it is necessary to analyse these results in such a way that we can decide where our obstetric service is lacking, or at any rate where it can be improved.

Table III represents an attempt at determining whether improved blood transfusion utilization throughout our huge area would be beneficial, aided by correct surgical judgement. The transfusion services have been present in every hospital or town in Queensland since 1950. There are now 104 blood donor panels in Queensland.

It is probable that some of these patients had adequate and perhaps massive transfusions in an attempt to avoid the fatal termination. It is also probable that for some of them no transfusion facilities, or perhaps no medical care, were available. Some of these patients would have been suffering from afibrinogenemia due to vascular

<sup>1</sup> Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.



TABLE I.

Queensland: Births, Stillbirths, Neonatal Deaths, Maternal Deaths, 1950 to 1954.

Statistical Division.	Live Births.	Stillbirths.	Neonatal Deaths.	Paranatal Deaths.	Paranatal Death Rate per 1000.	Maternal Deaths.	Maternal Mortality Rate per 1000 Births.
Metropolitan .. ..	53,185	980	891	1871	34.6	37	0.7
Rockhampton .. ..	10,541	236	196	432	40.1	18	1.7
Central Western .. ..	2886	57	61	112	38.2	5	1.8
Far Western .. ..	560	9	14	23	41.6	2	3.2
Mackay .. ..	5118	107	83	190	36.5	10	2.0
Townsville .. ..	8610	176	140	316	35.9	14	1.6
Cairns .. ..	11,014	258	206	464	41.3	15	1.4
Peninsula .. ..	1137	43	45	88	74.5	4	3.7
North-western .. ..	2584	54	55	109	41.5	6	2.4
Total, northern and western Queensland ..	42,450	934	800	1734	40.0	74	1.7
Rest of State .. ..	55,056	1079	1018	2097	36.8	50	0.9
Queensland .. ..	151,591	2993	2709	5702	36.9	161	1.1

TABLE II.

Maternal Deaths, Queensland: Five Years, 1950 to 1954.

Cause.	Metro- politan.	Number of Maternal Deaths.									Rest of State.	Queens- land.
		Northern and Central Statistical Divisions.										
		Rock- hampton.	Central Western.	Far Western.	Mackay.	Town- ville.	Cairns.	Peninsula.	North Western.	Total.		
Toxæmias of pregnancy ..	11	2	2	1	6	3	7	—	1	22	19	52
Placenta prævia ..	1	—	—	—	—	1	—	—	—	1	1	3
Other hæmorrhage of preg- nancy ..	1	—	—	—	—	1	—	—	—	1	1	3
Ectopic pregnancy ..	1	3	—	—	1	1	1	1	1	8	4	13
Anæmia of pregnancy ..	—	—	—	—	—	2	—	—	—	2	—	2
Other complications arising from pregnancy ..	—	1	—	—	—	—	—	—	2	3	2	5
Abortion without mention of sepsis or toxæmia ..	4	—	—	—	1	—	—	—	—	1	3	8
Abortion with sepsis ..	—	1	—	—	—	1	—	—	—	2	3	5
Abortion with toxæmia with- out mention of sepsis ..	—	—	1	—	—	—	—	—	—	1	—	1
Delivery complicated by placenta prævia or ante- partum hæmorrhage ..	2	—	—	—	—	1	1	—	—	2	3	7
Retained placenta ..	1	—	—	1	—	1	—	1	—	3	—	4
Other post-partum hæmor- rhage ..	3	—	—	—	—	—	2	1	1	4	4	11
Disproportion or malposition of fœtus ..	—	3	—	—	1	—	—	—	—	4	2	6
Prolonged labour of other origin ..	1	1	—	—	—	1	2	—	1	5	2	8
Laceration of perineum ..	1	—	—	—	—	—	—	—	—	—	—	1
Other trauma ..	2	3	—	—	—	—	—	—	—	3	1	6
Other and unspecified complications ..	1	2	—	—	—	1	—	1	—	4	2	7
Complications of puer- perium—sepsis of child- birth and puerperium ..	1	—	—	—	1	—	—	—	—	1	1	3
Puerperal phlebitis and thrombosis ..	—	1	—	—	—	1	—	—	—	2	1	3
Puerperal pulmonary em- bolism ..	2	—	—	—	—	—	1	—	—	1	2	5
Puerperal eclampsia ..	1	1	1	—	—	—	1	—	—	3	—	4
Other forms of puerperal toxæmia ..	1	—	—	—	—	—	—	—	—	—	—	1
Cerebral hæmorrhage in the puerperium ..	1	—	—	—	—	—	—	—	—	—	—	1
Other and unspecified puer- peral complications ..	1	—	—	—	—	—	—	—	—	—	—	1
Mastitis and other disorders of lactation ..	1	—	—	—	—	—	—	—	—	—	—	1
Total, all causes ..	37	18	4	2	10	14	15	4	6	73	51	161

embolism from foetal products—placenta or *Hæmorrhage amnii*. Although such patients can be treated by transfusion with whole blood, and have been so treated hitherto, the treatment can now be accelerated by the increasing availability

of serum fibrinogen to all centres. It is significant, I think, that the metropolitan area, where transfusion facilities are most readily available, has the lowest figures for maternal deaths due to blood loss.

Table IV represents an attempt to determine whether our ante-natal care could be improved.

In some cases no ante-natal care is possible, as the mothers live in the far outback, and reach the doctor only when something goes wrong or when they think their confinement is due. If toxæmia develops, these patients travel badly, and it is impossible for an isolated busy doctor to neglect his other patients to travel perhaps 200 miles to one patient. I have included abortion deaths

given in time to take effect; yet, apparently, there were no mishaps. It seems that there were no deaths due to inversion or rupture of the uterus. I presume that cases of hyperemesis are listed under "Abortions with Toxæmia".

TABLE III.

*Maternal Deaths from Causes Partially Treatable by Transfusion.*

Cause of Death.	Number of Cases.
<i>Placenta previa</i> .. .. .	3
Other hæmorrhage of pregnancy .. .. .	3
Ectopic pregnancy .. .. .	13
Anæmia of pregnancy .. .. .	2
Abortion without sepsis or toxæmia .. .. .	8
Delivery:	
<i>Placenta previa</i> or ante-partum hæmorrhage .. .. .	7
Retained placenta .. .. .	4
Other post-partum hæmorrhage .. .. .	11
Laceration of perineum .. .. .	1
Total .. .. .	52

among these, as even induced abortions can be largely avoided by sympathetic and helpful ante-natal advice. The one case of cerebral hæmorrhage in the puerperium has been included as being probably due to toxæmia.

Table V shows those cases in which death was due to bacterial invasion. This is a gratifyingly small number; but perhaps some of them would have been preventable if laboratory facilities had been available to determine which of our many antibiotics was most suitable in each case.

TABLE IV.

*Maternal Deaths from Causes Partially Avoidable by Ante-Natal Supervision.*

Causes of Death.	Number of Cases.
Toxæmias of pregnancy .. .. .	52
Total abortion deaths .. .. .	14
Puerperal eclampsia .. .. .	4
Cerebral hæmorrhage in puerperium .. .. .	1
Total .. .. .	71

Table VI shows those deaths due to a delayed second stage of labour. This is a very small number. Each case would have to be judged on its own merits to determine whether any of these deaths could have been prevented by judicious interference either above or below the pubic symphysis.

Table VII is interesting, as these deaths were once thought to represent the irreducible minimum of maternal deaths. However, the smallness of the numbers is an indication of the general acceptance of the principles of post-natal exercises or early ambulation and, perhaps, of the value of anticoagulant therapy.

These tables cover the deaths from obstetric causes in Queensland during the period from 1950 to 1954, and I think that there are several notable omissions. Obstetric shock has apparently not been listed on any of the death certificates as a cause of death *per se*, and there are no anæsthetic deaths. Obstetric anæsthetics, apart from Cæsarean operations, are usually given by labour ward sisters, and frequently pre-operative medication is not

TABLE V.

*Maternal Deaths Due to Sepsis.*

Type of Sepsis.	Number of Cases.
Abortion with sepsis .. .. .	5
Sepsis of childbirth and puerperium .. .. .	3
Mastitis .. .. .	1
Total .. .. .	9

#### NON-FATAL MATERNAL INJURIES.

The non-fatal maternal injuries are not capable of analysis on a regional basis; but it is probable that they run parallel to the foetal wastage and maternal mortality.

TABLE VI.

*Maternal Deaths Due to Dystocia.*

Cause of Dystocia.	Number of Cases.
Disproportion or malposition of foetus .. .. .	6
Prolonged labour of other origin .. .. .	8
Laceration of perineum .. .. .	1
Total .. .. .	15

The whole science and art of obstetrics is the avoidance of injury to mother and child, and it is not possible to do more than briefly discuss the maternal injuries as they impress a general practitioner.

Non-fatal maternal injuries may be broadly classified into general and local injuries.

TABLE VII.

*Maternal Deaths Due to Thrombosis.*

Cause of Thrombosis.	Number of Cases.
Puerperal phlebitis and thrombosis .. .. .	3
Puerperal pulmonary embolism .. .. .	5
Total .. .. .	8

#### General Injuries.

The general injuries may be primary and due to the pregnancy, or secondary to some other condition that is aggravated by pregnancy. General injuries are those that follow childbirth and affect either the whole system or some system remote from the birth canal. Local injuries are those that affect the birth canal itself. Some of the injuries, such as sterility, fit into both categories. Fortunately, in general practice we see very few general injuries of a severe degree; but we do see a large number of general injuries of a minor degree.

#### Injuries Due Primarily to the Pregnancy.

In considering those general injuries which are primarily due to the pregnancy, it is reasonable to consider them under the headings of the exciting cause.



The following tabulation is not complete, but represents the majority of these injuries seen in general practice:

**Physiological injuries:**

- Dilatation of ureters.
- Dilatation of veins.
- Postural changes.
- Permanent goitre (in endemic goitre regions).

**Injuries due to toxæmias:**

- Impaired renal function.
- Hypertension.
- Cerebral encephalopathy.
- Impaired liver function.
- Low serum protein level.

**Injuries due to infections:**

- Endometritis.
- Chronic cervicitis.
- Salpingitis.
- Pelvic adhesions.
- Chronic cystitis.
- Chronic pyelonephritis.
- Impaired renal function.

Possible sequelæ — sterility, intestinal obstruction.

**Injuries due to hæmorrhage:**

- Chronic anæmia.
- Post-puerperal pituitary necrosis (Simmond's disease).
- Non-fatal renal cortical necrosis and impaired renal function.

**Injuries due to therapy:**

- Sensitization to blood groups, particularly Rh factor.
- Sensitization to drugs.
- Ligation or thrombosis of accessible veins.

**Injuries Due to Aggravation of Preexisting Disease.**

Practically all preexisting diseases will be aggravated by the added stresses and strains of a pregnancy, and many latent diseases appear for the first time during a pregnancy. The notable exceptions are rheumatoid arthritis and migraine, which are usually relieved by pregnancy, but this finding is not constant.

It is usually in the second trimester, which is particularly free from obstetric complications and consequent primary injury, that secondary aggravation of preexisting disease becomes apparent. Cardiac disease, diabetes, chronic systemic infections, such as tuberculosis, blood dyscrasias and latent malignant disease, all tend to progress. Essential hypertension, varicose veins and hæmorrhoids and mental instabilities tend to become more pronounced.

Orthopaedic abnormalities, such as flat feet, lumbosacral strain, spondylolisthesis, kyphosis and lordosis and herniation of a nucleus pulposus may give trouble.

**Local Injuries to the Birth Canal.**

The older text-books describe a horrifying list of local injuries, many of which were fistulae. I have been fortunate in that I have not in general practice seen a fistula of obstetric origin or even a ruptured bowel or bladder. However, all *primiparæ* and many *multiparæ* suffer some injury to the birth canal—a small hidden tear in the pelvic fascia, a cervical laceration or a perineal injury. A routine examination in the labour ward with a speculum will reveal these injuries, and it is then for the obstetrician to decide which require immediate repair and which are sufficiently minor to be left to the natural processes of healing.

**Lacerations of the Perineum.**

Lacerations of the perineum are traditionally classified into first, second and third degree tears, according to whether they are superficial, whether they involve the levatores ani, or whether they divide the sphincter. If the patient has reached hospital, they can all be controlled or prevented by slowing the delivery or by episiotomy. However, we shall all be caught occasionally with the precipitate labour and the baby born before the patient's arrival at hospital.

I cannot do better than to quote Professor B. T. Mayes:

Prevention of laceration is one of the obstetrician's chief duties. This can be accomplished in most cases by careful delivery; slow extraction when using forceps; "ironing out" of the perineum; episiotomy when it is apparent that a laceration is imminent, and by gentleness in all manipulation within the birth canal.

One rarely regrets an episiotomy; one regrets more often the failure to perform the necessary snip.

At one time I performed a number of episiotomies under local anaesthesia, as I found it a very useful procedure to aid an otherwise natural childbirth. However, after several cases in which the wound failed to heal cleanly and broke down, later resuture being required, I have largely abandoned local anaesthesia and rely on brief ether anaesthesia for this procedure.

**Laceration of the Cervix.**

Laceration of the cervix is a rare cause of post-partum hæmorrhage; but it can be readily detected by a routine examination with a speculum and a bright light. Minor tears are normal in *primiparæ*. However, the tears can be extensive and may extend up to and include the uterine veins. If a uterine artery is ruptured, I would think that this would have to be from instrumental damage, as the tensile strength and elasticity of the uterine artery are considerable, and its situation is such that it has a considerable range of movement—it is not rigidly fixed at either end, it is tortuous, and it moves a considerable distance with each pulsation.

Apart from post-partum hæmorrhage, a deep cervical tear allows infection of the parametrial tissue and can even involve the peritoneum. Chronic cervicitis and persistent erosion can follow neglected cervical tears.

I have not seen a complete separation of the cervix and fervently hope that I never do. However, cases have been reported, and we can draw comfort from the fact that Professor Mayes's patient had no hæmorrhage and made an uninterrupted recovery.

**Laceration of the Vagina.**

Laceration of the vagina is common, particularly in those cases in which episiotomy is required. Speculum examination will often reveal a vaginal tear in some situation remote from the episiotomy. Tears in the posterior wall appear to give little trouble and can be readily sutured at the same time as the episiotomy. Those in the anterior wall tend to bleed more readily, and when sutured tend to cause urinary retention, necessitating catheterization for a day or two.

Even without an obvious tear, rupture of vaginal or vulval veins can occur, with the production of a hæmatoma. Various authorities strongly advocate various treatments. Greenhill advises evacuation and ligation or packing; Mayes advises conservative treatment; so whichever method we use has authoritative support. I think that if the patient has severe pain and requires blood transfusion, the obstetrician will have a more certain night's sleep if he operates and explores the area; the patient will also sleep more safely and soundly.

**Rupture of the Uterus.**

Rupture of the uterus is rare and can be spontaneous or traumatic. It has always been a calculated risk in a classical Cæsarean section scar. I would be interested to hear whether any uninfected lower segment Cæsarean scars have ever ruptured.

The difficulty is that of diagnosis, and the treatment is by resuscitation and laparotomy.

**Inversion of the Uterus.**

Inversion of the uterus is stated to be very rare, occurring about once in 10,000 deliveries.

Since this paper was initiated, I have seen my first case in Mackay. The patient was a *multipara* who had a chronic incomplete inversion. Manual replacement was not possible, and at laparotomy Huntington's manœuvre of unfolding the uterus by successive traction on tissue forceps failed to

move it, so subtotal hysterectomy was performed, with consequent permanent sterility.

This was certainly the easiest subtotal hysterectomy I have ever seen, as the uterine vessels were stretched across the inverted uterus at the level of the internal os.

#### Genital Prolapse.

Genital prolapse is the most common serious injury to the birth canal seen in general practice, and has been stated by some authorities to be due to tearing or stretching of the pelvic fascia. However, it is rare after a single pregnancy, when the tearing would be most likely to occur. The condition generally presents during or after the menopause in patients who have had three or more confinements. This would suggest a withdrawal of some endocrine support. Genital prolapse can also occur in nulliparae, and then it is usually post-menopausal.

It is interesting that lambing ewes who eat subterranean clover and abort have an associated uterine prolapse.

However, in some cases the condition is apparent immediately after a confinement. There is no doubt that in the vast majority genital prolapse must be regarded as a maternal obstetric injury; it is part of the price that the human race pays for assuming the erect posture.

#### Bony Injuries.

The gratifying "snap" of the coccyx during a firm forceps extraction with subsequent easy delivery is sometimes followed by persistent coccygeal pain. This can be partially disabling for years, and neither excision of the coccyx nor injections of long-acting anæsthetic agents seem to give permanent relief. I now rely on air cushions and aspirin.

Separation of the pubic symphysis can be excessive, and fractures have followed forceps extraction. Wide separation is stated to cause pain on walking.

Fracture of a rib due to cough may occur in pregnancy or labour, and is known as a cough fracture. It must be rare. I would be most interested to hear of any such fractures occurring in North Queensland.

#### DISCUSSION.

I have considered the maternal injuries separately, but very often they occur together. Once the normal rhythm of natural childbirth has been disturbed, the injuries tend to multiply. The obstructed labour requires perhaps long anæsthesia, which aggravates a post-partum hæmorrhage. The baby requires resuscitation, and the general practitioner's attention is distracted from the cervical tear. The resultant anaemia delays healing of the birth canal and the onset of lactation. Prolonged suckling cracks the nipples, and breast abscess develops. Prolonged bed rest may lead to thrombosis.

Perhaps our most common problem is a combination of minor injuries in a hard-working *multipara*. The woman has a poor posture, with rounded shoulders, sagging abdominal muscles, flat feet, varicose veins and hæmorrhoids. She has persistent backache, frequency of micturition and persistent leucorrhœa. She is tired and listless, and has a hæmoglobin value of less than 70%, and yet she makes a good wife and mother, with the help of frequent cups of tea and A.P.C. powders. She simply has not the time to attend for ante-natal visits, and regards her condition as inevitable in one who raises a family. She may be thirty-five years old, and looks fifty. This type of patient is a serious responsibility. She seems inevitably to become pregnant again, and she is presenting a more serious risk with each successive pregnancy.

#### PREVENTION OF MATERNAL BIRTH INJURIES.

The prevention of the birth injuries so far discussed has been fully dealt with in all the text-books and emphasized in our training. We have the knowledge to prevent them, but we do not always have the facilities.

Adequate ante-natal care is essential for safe obstetrics, and this includes the following measures: (i) careful

general examination at the first visit; (ii) blood typing (including the Rh status) and serum protein determinations; (iii) monthly examinations for the first six months, fortnightly visits for the next two months, and then weekly visits; (iv) the patient to be weighed, the urine tested, the blood pressure taken, and the height of the fundus checked at each visit; (v) when abnormalities, however slight, are detected, appropriate action to be taken.

To carry out this programme for every patient in this land of vast distances means that transport difficulties must be overcome, the expense of the transport must be brought within reasonable bounds (perhaps "assisted passages" for our best migrants could be considered), and the patients must be educated to accept the necessity for ante-natal care.

Adequate hospital facilities are essential.

I believe that there are very few domiciliary confinements in North Queensland in those areas where medical care is available. It is perhaps a counsel of perfection to advise that a blood transfusion should be ready within ten minutes of the decision to give it; but serum or serum albumin can be so available at a hospital, and blood a very short time later.

Serum albumin is available in every town where there is a medical practitioner. There are 110 blood donor panels in Queensland, available to every hospital in Queensland.

It is desirable that it should be possible to begin an emergency Cæsarean section within forty minutes of the decision to operate.

A blood bank at each hospital or town must now be considered essential.

If adequate ante-natal care and adequate hospital accommodation are available, then the next factor in reducing maternal birth injuries is the judgement and skill of the general practitioner. There is not one of us who has not wished, at some time or another, that he or she knew a lot more about obstetrics; I think that we have all done something about it in the form of extra reading, advice of consultants and the mastering of new techniques. It is a frightening thought for the new graduate that his training is considered sufficient for him to go to an isolated one-man town and to deal with all obstetric emergencies. Obstetrics is a very large part of general practice as we know it in North Queensland, and if we are to reduce maternal injuries we must be prepared to spend a lot of time in preparing to meet those emergencies which we know will occur.

#### ACKNOWLEDGEMENTS.

I am most grateful to Mr. S. E. Solomons, the Queensland Government Statistician, for his help in providing the information on which this paper is based. I am certain that we, as a profession, would greatly help the statisticians if, when writing out death certificates, we would remember that Mr. Solomons and his staff will be endeavouring to reduce our medical terminology to figures and conclusions that are understandable to the lay public. I must also express my gratitude to Dr. A. E. Shaw, of the Red Cross Blood Transfusion Service, for his help.

#### RECENT WORK ON DENGUE FEVER<sup>1</sup>

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BEFORE I go on to a description of modern work on dengue fever, a rapid survey of the main landmarks in the history of the subject will serve to place these remarks in their proper perspective.

#### Historical Survey.

The period from 1789 to 1905 may be called the clinical or descriptive era of the disease, when it was separated as an entity from other tropical diseases. Some valuable

<sup>1</sup>Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.



papers came from the early Australian medical practitioners, among whom was Dr. Eugen Hirschfeld (1898), father of Dr. Otto Hirschfeld, who delivered the inaugural address to this conference. "Dengue" was early recognized as possibly being a term covering a clinical syndrome for which there might exist more than one causative agent (Ornstein, 1890; Castellani and Chalmers, 1919). This early caution has been confirmed, and today the clinical diagnosis should be "a dengue-like fever", until a specific aetiological diagnosis is established.

Between 1905 and 1926 the part of *Aedes aegypti* in the spread of the disease among humans was elucidated. Prominent in this phase were Bancroft of Queensland (1906), and Cleland *et alii* (1917), of New South Wales. Much was done elsewhere, particularly by Americans in the Philippines (Ashburn and Craig, 1907; Siler *et alii*, 1926; and Simmons *et alii*, 1931). Since then other members of the genus have also been incriminated. These are *A. albopictus* (Simmons *et alii*, 1931), *A. scutellaris* (Mackerras, 1946), and *A. polynesiensis* (Rosen *et alii*, 1954).

Search for an experimental animal was unsuccessful for many years, until Blanc and his colleagues (1929) showed that certain species of monkeys underwent an inapparent infection when inoculated with infective human blood. That this probably also happened in nature was apparent from the observation of Simmons *et alii* (1931), that only animals obtained from areas in which dengue was not present could be infected. Sabin (1945) and Schlesinger (1952), by adapting the type I and type II strains to mice, provided a cheaper and more abundant supply of susceptible laboratory animals. The type I strain has since been grown in embryonated eggs (Schlesinger, 1950), and both types have been grown in tissue culture (Sabin, 1955a).

With these new tools available, search could be commenced for chemotherapeutic drugs, preventive vaccines and measures for the control and eradication of the disease.

#### Modern Work.

The problem of the possibility of second attacks of dengue was somewhat clarified by the discovery by Sabin (1950a) that heterologous immunity between the two strains was short-lived. Homologous immunity lasted at least four years. The picture was further complicated by the discovery of other viruses, which may be called cousins of the dengue group, and of which some produce clinical pictures which simulate those of dengue. In this family are yellow fever, West Nile fever, Murray Valley encephalitis and Japanese B encephalitis. You will recall that jaundice can occur in dengue, that headache and mental changes are common, and that sometimes frank encephalitis may be met with. In other words, the clinical pictures overlap (Rowan, 1956). These diseases show immunological cross relationships (Sabin, 1949; Sweet and Sabin, 1954; Casals and Brown, 1954; Pond *et alii*, 1955). They are all arthropod-borne, and with the exception of yellow fever, evidence accumulates that birds may be infected in nature.

Some are definitely known to occur in the same geographical areas. Thus both dengue and Japanese B encephalitis coexist on the Sino-Malayan coast. On clinical grounds, it would seem that Murray Valley encephalitis and dengue have been present in similar areas in Australia, although the Murray Valley virus extends beyond the confines of the region in which dengue is found. Because of cross relationships among the group, it is unwise to draw conclusions from immunological results alone (Smithburn *et alii*, 1954; Pond *et alii*, 1954; Anderson and Eagle, 1953).

The demonstration of the existence of jungle yellow fever by Soper (1937) gave an impetus, in the study of these diseases, to a search for wild hosts acting as reservoirs of these viruses, and for arthropod vectors other than those known to transmit the diseases in man. Under suitable conditions of temperature and humidity, it is probable that the dengue virus can exist in a mosquito for the duration of life of the insect. This can extend to 200 days (Blanc *et alii* 1929). This presents the opportunity of infection during each breeding season of a new, non-immune popu-

lation of vertebrates. Another possibility is brought up by the mention by Sabin (1955b) of the existence in pheasants of a virus cycle for eastern equine encephalitis without the intervention of arthropod vectors.

As far back as 1919 Japanese writers postulated that birds carrying mites could spread tsutsugamushi fever, Walsch (1923). Rosenbusch (1942), reviewing work done in the 1930's, suggested that migratory birds could transport equine encephalitis between the North and South American continents. A great deal of study has been devoted to this question in recent years (Eklund, 1954; Ferguson, 1954). The complete epidemiological cycle for any of these viruses in nature has as yet by no means been completely worked out, and caution is required in interpreting findings (Schaeffer and Arnold, 1954). Insects other than mosquitoes have to be considered. Thus the natural vector in man of Russian spring-summer encephalitis is a tick, and the virus of western equine encephalitis has been found in mites associated with nestling birds (Miles *et alii*, 1951). The field is large and mostly untilled, involving questions of the ecology of insects and animals, of meteorology and of virology. In addition to the routine searching for the presence of the virus and for immunological evidence of past infection, we now have to interest ourselves in the factors in nature which determine the cyclic changes in the population of insects and animals, a science which has only recently been opened up (Cragg, 1955). This has been forcibly impressed upon us during our endeavours to find out something about that animal so common in these parts, the flying fox, when it soon became obvious that very little was known of their migration and breeding habits. Mr. David Morgan, the ornithologist to whom we were indebted for the trapping and identification of the birds (personal communication), informs me that very great gaps also exist in our knowledge of their habits.

This excursion into virology has been made with a view to putting you in the picture as to what lies behind our approach to the dengue problem. You, whose work lies at the bedside, may wonder why we have been splashing around in the mangrove swamps and tidal flats.

To recover the virus from human patients, one must obtain serum within forty-eight hours after the onset of the fever. Apart from an epidemic, it is extremely difficult to diagnose a case so early. Many years may elapse between epidemics, and drawing inspiration from the work in kindred fields which we have described, we decided to look around for a possible reservoir in nature. Epidemics will occur when there is a coincidence of a large non-immune human population, with conditions favourable for a build-up of virus in this reservoir sufficiently large to spill over into the community, and the presence of an adequate supply of vectors to spread it. This last proviso is important, as with the improvement of urban sanitation the opportunity to study the disease in civilized communities becomes less and less.

#### Investigations on the 1954 Epidemic

Virus isolation has been hindered by the appearance of murine encephalitis among the mouse community, and possibly by the fact that the strain of mice originally used was not suitable for recovery of the dengue virus—a difficulty which Sabin (1952) also encountered.

Neutralization tests using dengue types I and II, West Nile fever, Murray Valley and Japanese B encephalitis viruses were performed on 12 human sera obtained during the epidemic. Eleven of these had neutralization indices varying from 10,000 to 80,000, with the type I strain. The other, with indices over 20,000, showed a slight preponderance in favour of the type II virus.

Complement fixation tests were carried out with the dengue I antigen on some 60 sera. It was found that the result became positive at the end of the second week, and the figure rose to a maximum in the third to fifth week; thereafter it declined and often the result of the test became negative. Furthermore, in those sera in which the neutralization test showed the recent infection to be the dengue type I virus, there was considerable cross reaction with the type II, Murray Valley and West Nile

viruses in the complement fixation test. More detailed analysis of these results is to be published (O'Connor and Rowan, in preparation).

The haemagglutination inhibition test has not been employed on these sera as yet.

In our search for a possible reservoir, remarks of local naturalists that flying foxes were very prevalent just prior to the epidemic led us to turn our attention to them. They frequent the vicinity of dwellings and are of the same natural order (Chiroptera) as the American cave bat, which Reagan and Brueckner (1952) showed to be among the few experimental animals susceptible to the dengue virus. Furthermore, its distribution in Australia and the Pacific (Ratcliffe, 1931) is coextensive with that of dengue fever. With the use of a challenge dose of at least 50 LD<sub>50</sub> in the mouse protection test, three of 17 sera obtained in December, 1954, some six months after subsidence of the human epidemic, gave positive results with the type I virus (O'Connor *et alii*, 1955). Of 28 samples taken in December, 1955, at a site some 30 miles north of that visited in the previous year, three gave positive results with type I virus, inconclusive results with the type II strain and negative results with West Nile, Murray Valley and Japanese B encephalitis viruses. One gave a positive result with the type II virus, an inconclusive result with the type I virus and negative results with the other three. Four which gave positive results with Murray Valley virus and negative results to both the dengue viruses, provided one which gave a positive result with the Japanese B virus and one which gave a positive result with the West Nile virus. The species of fox studied were *Pteropus gouldi* and *P. scapulatus*.

Among the birds which were trapped in December, 1954, none of 15 wild duck (black duck, *Anas superciliosa*, and grey teal, *A. gibberifrons*) gave positive findings in the protection test using the type I virus. Of 21 wading birds and one silver gull (*Larus nova-hollandiae*), the gull and seven others gave positive results. These included four red-necked stilts (*Calidris ruficollis minuta*), a sharp-tailed sandpiper (*C. acuminata*), a grey-tailed tattler (*Heteroscelus brevipes*) and a red-capped dotterel (*Leucopoltus alexandrinus ruficapillus*). Of the waders, all except the dotterel are migrants from sub-arctic regions.

Protection tests are only a preliminary pointer and are subject to such fallacies as non-specific reactions; but the presence of positive results among these inhabitants of the coast indicates an avenue of investigation worth following up, especially as dengue is primarily a coastal fever (Castellani and Chalmers, 1919; Olivier, 1921). There is also evidence that the 1897, 1905, 1916 and 1926 epidemics in Queensland commenced in the north and worked down southward.

The presence of positive findings among migratory wading birds is of interest when we follow up the remark of Hamlyn-Harris (1931) that there is an association of the occurrence of dengue in Australia with outbreaks in the Far East. Difficulty is being experienced in obtaining information from original sources in these parts; but reports by Siler *et alii* (1926) and by Morin and Piot (1926), for these areas and for Australia by Metcalfe (1924), from the Cairns Post (1926), by Murray (1931), and by Lumley (1943), disclose that 10 of 13 epidemics in Thursday Island and Queensland were closely associated with outbreaks in South China, Indo-China or Formosa. Between 1878 and 1931, of 22 outbreaks in the sector including Java, Australia and Southern Polynesia, there were 19 outbreaks about the same time in the above-Far Eastern region.

Manson (1914) noted that dengue has a tendency to appear intermittently in pandemic form. The last time that this occurred was in the 1925-1927 period, when Australia, the Far East, India, Africa and the Levant were involved. Migratory wading birds spreading out over the globe each year on their annual southern journey from the comparative congestion in the sub-arctic regions could well serve as disseminators of dengue to tropical and sub-tropical coasts, where it could be acquired by man or some reservoir

which comes in contact with him. For this reason we propose to pursue our investigation of the fruit bats and wading birds which frequent contiguous coastal areas, the mangrove swamps and tidal flats, in an endeavour to find out the significance, if any, of the positive results to protection tests which we have recorded.

#### Summary.

A brief outline of the main phases of the history of dengue fever is given. Reference is made to recent research on dengue and other arthropod-borne fevers. The finding by means of neutralization tests that the dengue type I virus was the preponderant, if not the sole, virus operative in the 1954 Townsville epidemic is described. The relative transiency of the response to the complement fixation test, and the crossing of the sera with Murray Valley, dengue type II and West Nile antigens, are described. The occurrence of positive results to protection tests in sera from fruit bats and migratory wading birds, using the dengue type I virus, is reported. A similar finding with Murray Valley encephalitis, Japanese B encephalitis and West Nile viruses is also reported. The significance of these results is discussed. Certain features of the global spread of dengue are related, and their possible connexion with the protection test results is discussed.

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### THE INCIDENCE OF RENAL COLIC.<sup>1</sup>

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DURING the war I remember vividly an incident which occurred in a squadron in a nearby area. At sick parade the medical officer was confronted by about a dozen men all passing blood in the urine and with varying degrees of renal colic. Several others presented during the morning. Examination of the urine revealed some oxalate crystals, and the cause was thought to be the large-scale consumption of a new consignment of American tomato juice on the previous evening. The squadron was in a tropical area.

The history of renal colic is very old, and reference is made to it in ancient literature. Hippocrates (460-370 B.C.) described four diseases of the kidney, the first of which was renal colic:

An acute pain is felt in the kidney, the loins, the flank and the testicle of the same side. The patient passes urine often. Little by little the urine is suppressed. Some gravel passes with the urine. When this gravel passes down the ureter it causes severe pain which ceases when it is expelled.

<sup>1</sup>Read at the North Queensland Medical Conference, Cairns June 25 to 30, 1956.

### Clinical Features.

The acute spasms of pain occur suddenly and unexpectedly. It is cutting in character, intense and agonizing, and so pressing that the patient finds it impossible to get relief in any position. He is often rolling about or squirming on the floor or walking endlessly; but no position gives ease, so the restless movement goes on.

The pain usually begins between the last rib and the lumbo-sacral muscle, and extends around the flank to the region above the anterior superior spine of the ilium, thence down to the external inguinal ring and usually to the testicle.

Hæmaturia and frequency of micturition may be accompanying symptoms. Nausea and vomiting usually occur after the severe pain has persisted for a sufficient period.

The colic may be of short duration, or it may go on for days. Relief may be dramatic and sudden if the cause of the obstruction suddenly vanishes, as when the stone enters the bladder.

During the attack of colic, tenderness in the loin may be present, but it is not very marked. The symptom is far worse than the sign.

### Ætiology.

The causes of renal colic are related to obstruction of the ureter. The most common cause is stone and in particular the small mobile stone.

Males suffer more than females, and it is commonest in the thirty to forty years age group.

The small types of stone, which are able to migrate down the ureter, may be recurrent, and may be related to dietetic or climatic conditions. The larger renal calculi less frequently give rise to colic.

Normal urine contains colloids, such as mucin and chondroitin-sulphuric acid, which by adsorption enable the crystalloids to be held in supersaturated solution. Upset in the crystalloid-colloid ratio is an important factor in stone formation. This may well be influenced by racial, dietetic, climatic and other conditions.

Geographic distribution is more important than racial. Stone is common in parts of England such as Norfolk, Suffolk, Cambridgeshire, Derbyshire, and North Wales. It is found commonly in Holland, Eastern France, the Balkans, the lower Volga Valley, lower Egypt, the Punjab and southern China. The geology and climate of these areas are so varied that such factors as hardness of water, soil content and climate are probably much less important than habits of diet and, as in Egypt, sanitation.

There is a high incidence of stone amongst Anglo-Indians and Anglo-Egyptians. Diet is probably a more important factor than climate in these people. Rich feeding certainly increases uric acid excretion, and a definite proportion of gouty patients develop renal calculi. On the other hand, stone is commonest among ill-nourished classes, and most common of all among the southern Chinese, who subsist almost wholly on rice. It used to occur much more commonly in children in England and in Indo-China; it is still very much a children's disease.

The crystals of calcium oxalate which occasionally give rise to renal colic are not permanent, but become dissolved or pass without necessarily contributing to the formation of a stone.

Rose in 1945 described a series of 62 cases of urinary colic amongst army personnel admitted to hospital in tropical areas. They represented 6% of all admissions. Of these he classified 53 as being due to crystalluria and nine to true renal calculi. He stressed the importance of adequate fluid intake in personnel coming to a tropical area. He described a progressive state in which the newcomer to the tropics sweats profusely and does not take enough fluid, so that in the first three months crystalluria is likely to occur. In the next six months small aggregations of crystals are likely to occur, and these gradually acquire a protein matrix and enough calcium to be radio-opaque. This may be passed, or may become disintegrated, or may develop into a true calculus.

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Of the 53 patients, 38 were in the early stages, with crystalluria and with normal pyelographic findings.

Infection of the kidney and pelvis may predispose the subject to stone formation, and may well be part of a vicious circle with the stone causing intermittent infection. Recumbency, particularly with skeletal fractures, is a cause of stone formation, which may often be bilateral, and which is due to defective drainage from the kidney as well as to the abnormality in calcium metabolism.

Congenital abnormalities of the kidney, chronic obstruction and hydronephrosis also contribute to the formation of stone.

#### The Present Series.

In a series of 7000 cases seen over a given period, a search was made for the incidence of renal colic as a symptom. This presented in 32 cases only. An analysis of these patients showed that their average age was about forty-one years, the oldest patient being aged sixty-one years and the youngest seventeen.

The commonest periods of the year for renal colic to occur were in the summer months—i.e., October to March.

Men were more commonly affected than women, in the proportion of 20 to 12. Right-sided colic was commoner (20 cases).

There was a history of repeated or previous attacks in 19 of the cases. This no doubt helped to give the impression that renal colic occurred more frequently than it actually did.

The stone was passed in nine cases and removed in three; a stone was seen in the X-ray film in seven other cases. A hydronephrosis was seen in a further seven cases.

In six cases only was the urinary tract clear, with no evidence of a calculus.

Most of the stones which were passed were not collected by the patient. There were three consisting of phosphates and carbonates and an albuminous matrix and one uric acid stone.

#### Discussion.

The typical incidence of greater frequency of renal colic amongst males was seen in this series; but the number of actual cases of renal colic is small, and gives the impression that the symptom is not more common here than in temperate climates. The total number of people includes men, women and children, most of whom have been living in Cairns for many years. Crystalluria causing renal colic does not seem to be a serious problem amongst these people. On the other hand, in the series of army personnel renal colic due to crystalluria was quite common; this suggests that some important factor was in operation. The occurrence of repeated attacks in the same patient gives the impression that the symptom is more common than it really is. More than half the people in the series had had renal colic on more than one occasion.

There are other conditions, such as dyshidrotic eczema and tropical ear, which do not seem to occur to the same extent amongst the stationary civilian population as they did in army units.

Acclimatization describes this adjustment of body functions to the outside environment. This must be the reason why there is the difference in behaviour between the stationary population and army personnel. Human physiology adjusts itself in some way so that there is no precipitation of crystalloids from solution.

#### Summary.

Thirty-two cases of renal colic occurring amongst 7000 people are presented. The aetiology of renal calculus is discussed.

The low incidence of renal colic in the stationary population is most probably due to adjustment to climatic conditions.

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## SURGICAL COMPLICATIONS IN THE TROPICS.<sup>1</sup>

By I. A. LESTER,  
 Cairns.

THIS paper is the outcome of a strong personal impression that the post-operative course of patients undergoing major operations is more likely to be troublesome in the hot Cairns summer than in the more pleasant winter. It was thought that a review of a fairly large sample of the patients operated upon in the last few years might lend some statistical support to this impression. The result of this review will be given and discussed. It will be seen that it has been only partly successful in demonstrating a relationship between the weather and the incidence of surgical complications; nevertheless, the results are suggestive, and though the series is too small to allow any definite conclusions to be drawn, the impression of a relationship remains, and the review makes an interesting basis for discussion.

#### The Cairns Weather.

The year in Cairns usually begins with very hot, humid weather in January, and this continues until the wet season commences. The rain begins at any time from mid-January to March, and is characterized by weather which is fairly pleasant while rain is falling and oppressive when it is not. From mid-April to the end of October the climate is mild and agreeable, and after October it gradually becomes hotter until the end of the year. The last months of the year are usually rather dry. The graphs will illustrate these points (Figure 1).

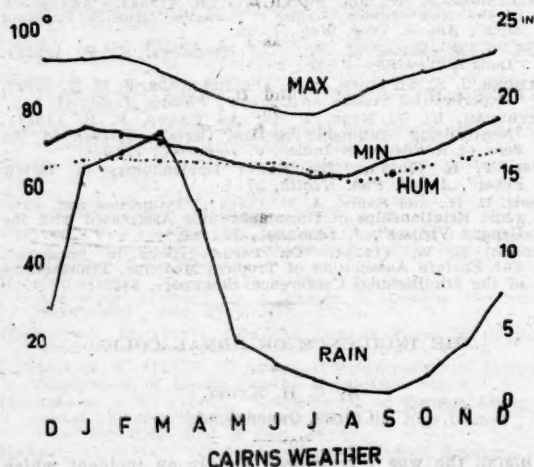


FIGURE 1.

I think most people would agree that the most oppressive months are December, January and February, and the most agreeable June, July and August.

#### Surgical Complications Possibly Influenced by Weather.

It would be well to take the complications which seem to be influenced by the weather one by one, and see in what ways this influence could possibly be exercised.

#### Wound Infection.

Wound infection remains, of course, the result of a bacterial infection and theoretically preventable, no matter what the weather, and it must be admitted that any factors

<sup>1</sup> Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.



operating in the tropics are merely accentuations of factors which operate anywhere. At the same time infection does seem more apt to occur in very hot weather, and to be more difficult to prevent by usual ward and theatre aseptic routines. The possible reasons for this are as follows:

1. During hot, humid weather there is a greater reservoir of infection amongst the nursing and medical staff and on the patients' own skin. Mild heat rashes, no doubt mildly infected, are common, and often occur on the flexor aspects of the forearms. Serious rashes, of course, preclude surgery, but many are often no more than an itchy red patch and are ignored. Frank purulent infections are also common in the hot weather, and are probably associated with the rise in the general staphylococcal carrier rate

lesion and the nature of the operation carried out are much more important than the climatic conditions in causing gastro-intestinal paralysis, and these factors are not susceptible to analysis in the comparatively small number of cases available for this review.

#### Thrombosis and Embolism.

The incidence of thrombosis and embolism is very low. I believe it is more common in hot weather, possibly again because of disturbed electrolyte balance; but it has been quite impossible to substantiate this owing to the low incidence.

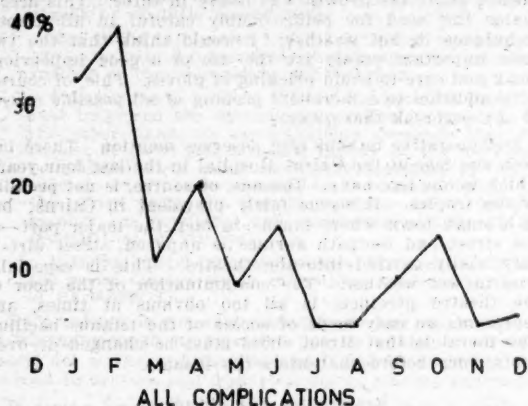


FIGURE II.

amongst staff, the nose and throat being particularly prevalent sites of the infection. (Naturally, patients with a frank infection are excluded from the operating theatre.) Furthermore, the perineal area is liable to increased sweating and seems to be a potent source of contamination. This will be discussed in more detail later.

2. Free sweating makes the aseptic routine more difficult to follow; the forearms' sweat contaminates the sleeves of gowns, and the fingers of gloves rapidly become moistened with sweat, so that, if a glove is pricked, infected material readily escapes.

3. It seems likely also that the patient's skin is less resistant to infection when devitalized by sweating and the increased water content. This, of course, is conjectural. Sweating under dressings does occur and would increase the chances that bacteria might gain a foothold.

#### Chest Complications.

Chest complications—*viz.*, atelectasis, bronchitis and pneumonia—seem more prevalent in the hot than in cool weather, perhaps paradoxically. This is hard to explain, and I would like to hear any comments on it. Perhaps air-conditioning of operating theatres to a degree which suits the staff rather than the patient contributes. Perhaps general lowering of morale and reluctance to move more than necessary in very oppressive weather also helps.

#### Gastro-Intestinal Paralysis.

I include in the term "gastro-intestinal paralysis", post-operative ileus, acute dilatation of the stomach and slow emptying of the stomach in partial gastrectomy. These always seem to be more prevalent and more severe in very hot weather, and to cause much less trouble in the winter months. The disturbances in fluid and electrolyte balance occasioned by heavy sweating, and the often uncontrollable thirst which results from it, are obviously a possible contributing factor to these disturbances. However, it has been impossible to test this impression, as the preexisting

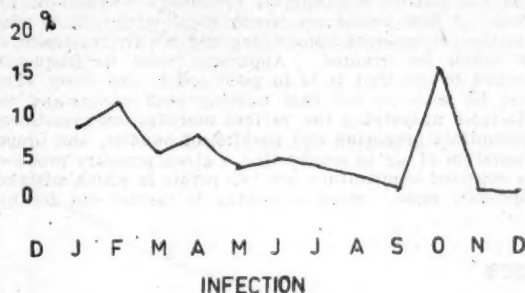
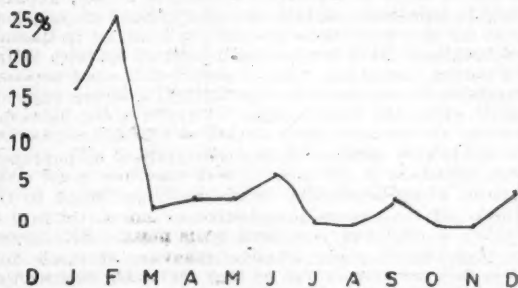


FIGURE III.

#### Investigation.

Only operations included under the heading of general surgery have been dealt with. All major operations carried out in the two-year period from June 1, 1953, to May 31, 1955, have been reviewed, and any post-operative complication has been assigned to the month in which the operation was performed. The analysis was confined to only those complications already discussed—*viz.*, infection, chest complications, gastro-intestinal paralysis and thrombotic phenomena. All complications sufficiently important to have been noted in the resident medical officer's notes have been recorded, and it may be stated here that the records have been found on the whole quite adequate. The results are shown in the graphs (Figures II, III, IV and V).



#### RESPIRATORY

FIGURE IV.

It will be seen that respiratory troubles and wound infections seem definitely and consistently highest in January and February. The other complications also show a slightly higher incidence in these hot months in the early part of the year, but no rise in the hot weather towards the end of the year. The figures are admittedly small, and if anyone wishes to say they mean nothing, this cannot be disproved. At the same time, the figures do seem to lend some support to a view that surgery is a more trouble-

some occupation in hot weather, particularly hot, humid weather, than in cool weather.

#### Discussion.

What can be done to decrease these apparently increased risks? Once again, it will be best to discuss them one by one.

#### Infection.

As was stated at the beginning of the paper, infection is due to bacterial contamination and is preventable. Julian Taylor, in an article referring to a series of herniorrhaphies carried out in a prisoner-of-war camp, makes some very scathing remarks to this effect.

At the Cairns Hospital all customary precautions are taken. A few points are worth mentioning. It is vital that the processes of autoclaving and hot-air treatment be not taken for granted. Apparatus must be frequently checked to see that it is in good order, and every effort must be made to see that nursing staff understand the principles underlying the various sterilization procedures. Appropriate preparing and packing of bundles, and proper evacuation of air to ensure that a given pressure produces the expected temperature, are two points in which mistakes commonly arise. Hand scrubbing is carried out for five

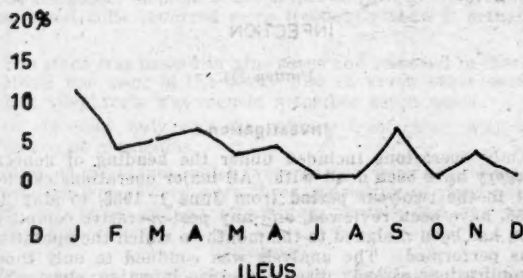


FIGURE V.

minutes with soap and running water. A longer period is, I think, a waste of time and unnecessarily damaging to hands; but scrubbing should be done properly, and trainee nurses should be taught, not left to find out, how to do it. The use of soaps or detergents containing hexachlorophene is said to represent a definite advance in hand preparation; but so far as I know these are not yet available in Queensland hospitals. Skin preparation is carried out with iodine as a routine procedure. This is preferred because personal impression as well as some experimental evidence suggests that it gives the best results. Unfortunately, however, reactions are common. Most of them are mild, but occasionally one is very serious. It has constantly to be impressed on the members of the nursing staff that they must make inquiries about sensitivity before applying iodine to the patient. If the patient is sensitive to iodine, tincture of cetavlon is used and is a good second-best. Side towels are used; but I doubt whether they are of much help unless they are impervious, as they inevitably become wet. One small precaution which definitely seems to be of value, especially in gynaecological operations, is to apply a sterile waterproof drape across the lower part of the abdomen to screen off the pudendal area. In hot weather this area sweats freely and is a fruitful source of infection. Hands, instruments and sutures often touch this section of the drapes, and once they are wet, unless they are waterproof, they are of little value in keeping out infection. These drapes have been improvised cheaply out of plastic sheeting. If they are wrapped in the ordinary drapes, they can be autoclaved without sticking together. This has notably lowered the incidence of minor wound infection in gynaecological patients.

But most of our serious wound infections have occurred in sporadic sharp epidemics. In each case a review of the

operating theatre records has revealed a "common denominator" who has been present at the operation on all affected patients. This common denominator has proved to be the surgeon or assistant surgeon in each instance. Moreover, further incriminating evidence has been obtained by comparing the bacteriology of the wounds with nose and throat cultures of all theatre personnel, and this evidence also points to the suspected person. Appropriate action has always resulted in the prompt control of the outbreak. As was stated before, it would appear that hot weather is associated with a high carrier rate of staphylococci. The rate is indeed somewhat alarming. In February, 1956, an investigation into a small outbreak of wound infection showed that coagulase-positive staphylococci could be recovered from six out of twelve members of the operating theatre staff; the growth was heavy in three. This accentuates the need for being doubly careful in all aseptic techniques in hot weather. I would think that the two most important points are the use of a good impervious mask and care to avoid pricking of gloves. This, of course, is in addition to a merciless probing of all possible causes of any outbreak that occurs.

Post-operative tetanus also deserves mention. There has been one case at the Cairns Hospital in the last four years, which is one too many. Tetanus, of course, is not peculiar to the tropics. It seems fairly prevalent in Cairns; but in a small town where much—in fact, the major part—of the street and footpath surface is unpaved, street dirt is very easily carried into the theatre. This is especially true in wet weather. The contamination of the floor of the theatre precincts is all too obvious at times, and represents an easy mode of access of the tetanus bacillus. The moral is that street shoes must be changed or overboots worn before one enters the theatre.

#### Respiratory Complications.

In my opinion, respiratory collapse is of overwhelming importance. Infection *per se* is rare; it is usually secondary to collapse. Therefore I do not think that the prophylactic use of antibiotics is indicated, except perhaps for those patients known to have a preexisting chest infection. The important point is that post-operative breathing exercises must be commenced early and enthusiastically; it does not matter much who supervises them as long as she is conscientious. It has been particularly noticeable that when physiotherapy has been carried out conscientiously, chest complications have been absolutely minimal. This, of course, applies to all climates; but in the tropics it seems to me that a little extra effort is needed. Theatre air-conditioning temperatures must be watched, as thermostats—at least in Cairns—seem most capricious, and we have more trouble keeping the theatre warm than in keeping it cool. I believe that a temperature of 74° F. and a humidity of 55% represent a good compromise between the safety of patients, the comfort of staff and anaesthetic explosion hazards.

#### Gastro-Intestinal Paralysis.

Little need be said on the subject of gastro-intestinal paralysis. It is perhaps well to avoid "cold" gastro-intestinal surgery in very hot weather. Apart from this, fluid balance should be specially carefully attended to and controlled by frequent blood electrolyte analysis. A flame photometer is essential if results are to be obtained before they are already out of date. Also blood electrolyte estimations should be made when indicated before operation, whenever prolonged intravenous therapy may be necessary afterwards.

#### Summary.

In summarizing this paper I feel that an apology may seem due, because most of what has been said has been stressing the obvious. At the same time, the obvious is often what is overlooked. Thus in the tropics we should not use the hot weather as an excuse when things go wrong, but should, by applying all the accepted surgical methods and precautions with perhaps a little extra vigour, prevent complications from occurring.



# TUBERCULOSIS: AN ASSESSMENT OF THE PRESENT POSITION.<sup>1</sup>

By E. W. ABRAHAMS,  
Brisbane.

DUBOS, in his introduction to "The White Plague", makes the following statement:

From three to five million persons die of tuberculosis every year throughout the world. Some fifty million suffer from the disease and transmit the germ of infection to their fellow men. Yet in every continent under every climate and among men of every race there are communities where tuberculosis is either completely absent or of little consequence . . . .

Men living in complex and industrialized communities can be as free of tuberculosis as were once the American Indians or the Polynesians and Eskimos . . . .

Tuberculosis is a social disease and presents problems that transcend the conventional medical approach. On the other hand, its understanding demands that the impact of social and economic factors on the individual be considered as much as the mechanisms by which tubercle bacilli cause damage to the human body. On the other hand the disease modifies in a peculiar manner the emotional and intellectual climate of the society that it attacks.

It is this subtle interplay between the social body and the social disease which constitutes the central theme of its study.

Tuberculosis is an epidemic disease just as surely as is whooping-cough or measles; but its epidemic involves years, not weeks, and the rise and fall of its incidence can be seen in decades and centuries, not in months and years.

It seems likely that in England there was a peak of disease incidence in 1650, which slowly subsided for many decades. When it reached its lowest level and began to rise we unfortunately do not know—possibly in the middle of the eighteenth century, when travel was confined to the rich, and when the poor, though poor, were well fed and not overcrowded, and Goldsmith could write:

A time there was, ere England's griefs began,  
When every rood of land maintained its man.

With the dispossession of the villager<sup>2</sup> and the drift to the city culminating in the industrial revolution, tuberculosis probably began to increase in sympathy with the commencement of overcrowding and malnutrition, and probably did not begin to decrease till the middle of the nineteenth century, when the industrial revolution was stabilized and the commencement of the trend towards industrial justice began.

If we assume 200 years from peak to peak, it is at least possible that we are at present approaching a naturally reduced incidence—in other words, a younger generation is arising with little biological experience of tubercle bacillus infection, and any social revolution might precipitate a new wave of infection (Figure I).

It is important to realize that this fall in deaths began before public health was an active force in Great Britain, and has continued at a fairly steady rate up to 1945, affected only by wars, the influenza epidemic and so on, in its steady downfall.

In 1945 there was general agreement that, though the figures from various institutions suggested that therapy was worth while for the individual, there was no evidence—statistical evidence at any rate—to suggest that it was worth while for the community.

To change the incidence of an epidemic, one must (a) alter host resistance, (b) alter the virulence of the organism, (c) alter environmental factors affecting spread. We have nothing to suggest that our falling figures are due to altered virulence, and though host resistance probably increases, genetically, by elimination of susceptibles, in all probability we differ little from our grandparents in this

regard. Thus the fall of incidence, as I have already anticipated, is probably due to changes in the environment—notably the smaller average family (which limits one man's infecting circle), better nutrition, a rise in the real value of wages, and, before the introduction of streptomycin, last and least, public health measures.

## Australia and Queensland.

The first white man buried in Australian soil was one of Cook's sailors. He died of phthisis in 1770. In spite of this inauspicious start, the tuberculosis position in Australia has always been favourable, and there are many references to the "salubrious" climate and the healthful soils of the new Colony. I doubt, however, if there was much voluntary emigration to Australia for health reasons until the latter part of the nineteenth century, when the journey out from England had lost many of its rigours.

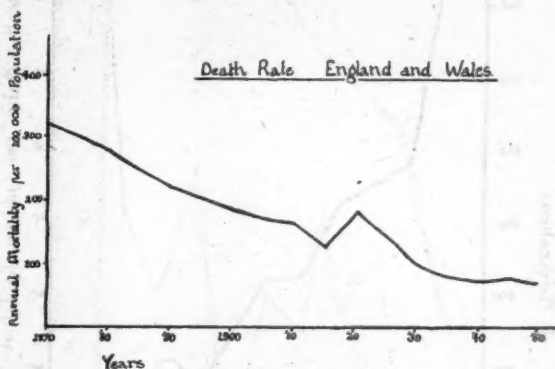


FIGURE I.

England and Wales: death rate.

The general pattern here has followed that of western Europe, except that Australian figures, until recently, have been consistently lower than European figures. They are now comparable with, for example, Danish figures. There were no deaths from tuberculosis in Denmark last year in persons under the age of twenty-five years.

Contrary to local belief, Queensland probably differed little from the rest of Australia, except possibly in the relative absence of bone and joint disease. For example, the mass radiography figures for the Australian Imperial Force showed no substantial difference between the States. When tuberculin rates only are considered, Queensland figures badly. For instance, our reaction rate for children of school-leaving age is 25%, while in Victoria and Canberra the rates are 5% and 6% respectively. This, I believe, is due to the fact that children of this age were infants and toddlers at a period when much Brisbane milk was unpasteurized and came from herds subsequently shown to have a reactor rate of up to 13%.

As this picture has now changed, it seems likely that our rate should fall precipitately in the next few years, as children leaving school should then have been brought up on treated milk.

Figure II shows the death rate and notification curve since 1900.

The limitations of the statistical method are shown by an American comment on this rise, which was reflected in Australian figures—and attributed to a post-war increase and to immigration problems. The concept of one world is a new one, so that we cannot ignore the terrific problems of our near north, where a thousand million people exist. At the Asian-Pacific Conference in Sydney last year I, for the first time, became really aware of their problems from meeting some of those trying to do something with it. When a man tells you that one of his chief problems is the destruction of sputum among a peasantry who cannot afford the fuel to burn it, one gets a more realistic picture of the problem than from figures, however striking they may be.

<sup>1</sup>Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.

Japan provides a possible prototype of the development many of these countries may experience, so it is worth while considering the recent course of events there.

Figure III shows the effect of industrialization of a rural people undergoing a condensed version of the British industrial revolution—the plateauing, the stabilization of

It seems unlikely to me that the other Asian nations are likely to achieve these results, at any rate not for some time, and unless B.C.G. makes a vast difference to the picture, increasing industry seems likely at first to produce more rather than less tuberculosis, though probably less than in the Japanese epidemic.

#### The Epidemiological Effects of Chemotherapy.

Since the introduction of streptomycin and PAS in the last years of the 1940's, the drop in the tuberculosis death rate which we have everywhere seen has been most dramatically accelerated (Figures IV and V). That this has been due to streptomycin, and latterly to isoniazid, is beyond all doubt.

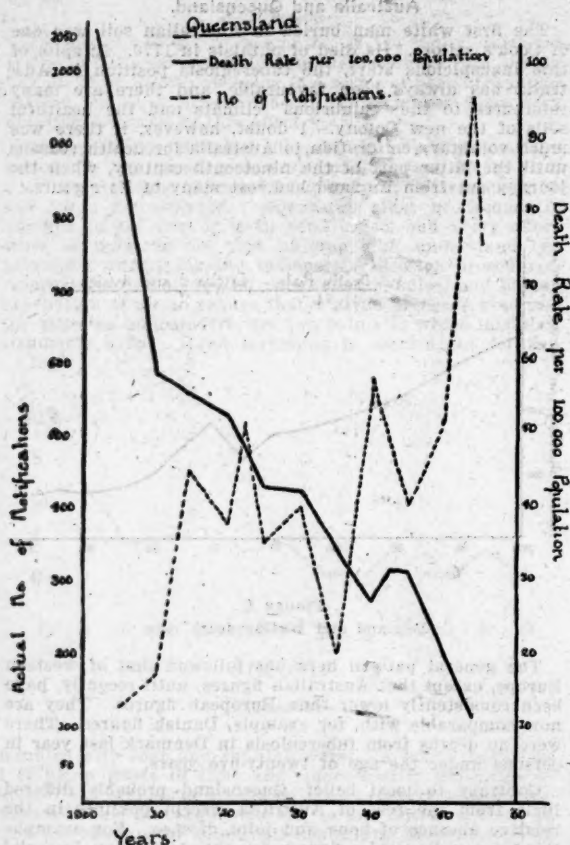


FIGURE II.

Queensland: Death rate and notification curve since 1900.

the position and the fall, the effect of really energetic public health measures.

In the period 1931 to 1951, tuberculosis was the leading cause of death in Japan, and in 1945 it killed more people than all the United States air raids, including the two atom bombs, the death rate that year being 282 per 1000. The Japanese habit of sleeping in tightly sealed rooms in the cold winter, large families, grinding poverty, diets of low protein content, and a dormitory system for young female factory workers are all predisposing factors to the spread of a respiratory infection.

The United States Occupation Authority instituted a compulsory tuberculin test for persons aged up to thirty years, with mass X-ray examination of positive reactors. Among 25,300,000 positive reactors and 30,000,000 more given B.C.G. vaccine between the end of the war and 1952, 1,300,000 active cases were found. By 1952—i.e., before isoniazid—the death rate had dropped from 282 to 82 per 1000, and in 1953 to 68. In the opinion of Sams, who was in charge of the work, much of this fall is attributable to B.C.G. vaccination.

It is of interest that this was possible during the occupation, with an autocratic but benevolent regime and a docile population.

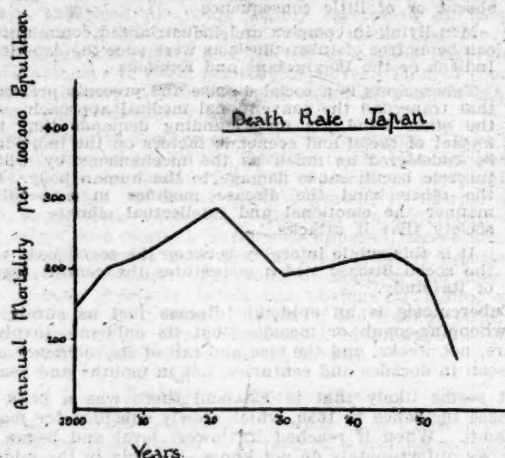


FIGURE III.  
Death rate, Japan.

From our own experience, we all know that patients who a few years ago would beyond all doubt have died, now live, and that many of them are "cured"—well, working, reproducing, and leading full, active lives. However, it is not merely patients with early lesions who are so improved. Many of them are in an advanced stage and even desperately ill when they come under observation. Now these people in general promptly lose the tubercle bacilli from their sputum, and subsequently, for much of their lives at any rate, are non-infectious. Therefore, for the first time we have a weapon available for making a majority of our patients non-infectious.

#### Discussion.

It has been for years the claim of those interested in tuberculosis that if the cycle of infection can be broken, the disease "inevitably must" disappear. Though much twaddle has been spoken along these lines, of which "not a menace to public health by virtue of education and health training" is one of the more famous examples, the premise still remains broadly true.

If we continue with intensive case-finding, with the hospital care of subjects found (at least until their sputum is "negative") and, if need be, with the permanent segregation of patients whose sputum will never be "negative", then, given social stability, there is in this community no reason why tuberculosis should not be reduced to the same status as diphtheria and smallpox. Maybe smallpox is a better example, for tuberculosis, like smallpox, would be a continual cloud on the horizon, and a potential migrant among any shipload of immigrants to this country from areas still infected would be a source of social ostracism.

So far I have not mentioned anything except orthodox public health procedures. B.C.G. must enter into any account of tuberculosis control. In conditions of high



incidence—of universal tuberculous infection at some time of life, as occurs in Asia and many parts of South America, etc.—B.C.G. is the most useful weapon to hand, the most likely to achieve success, even though partial.

I will not reiterate the long string of pros and cons, of which the latest is the Medical Research Council report on a statistically controlled series, intended to silence the most

no social cataclysm occurs to force us back to the standards of living, nutrition and hygiene of 100 years ago (which might have followed Fascist victory in the war just past), the cycle of infection is being broken and the virtual disappearance of the disease will follow.

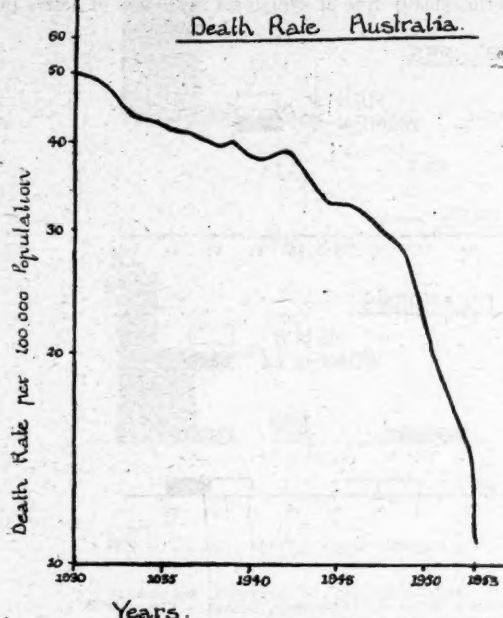


FIGURE IV.  
Australia: death rate.

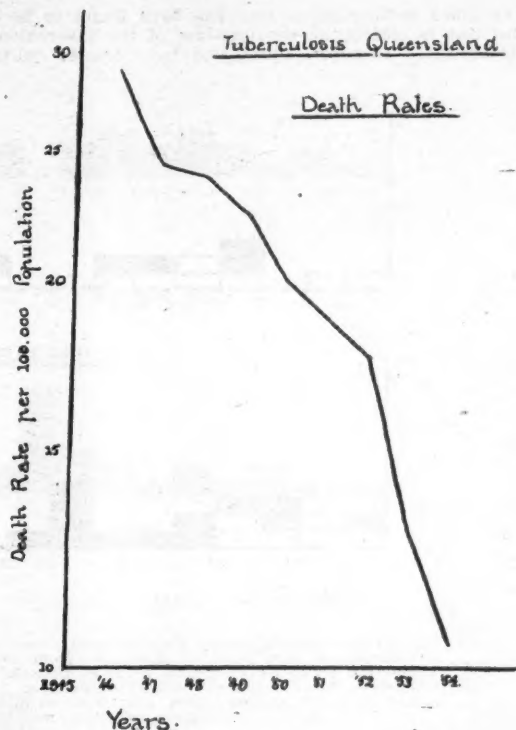


FIGURE V.  
Queensland: death rates.

biased statistical criticism. The results of this are just to hand, and show that a very useful degree of protection has been conferred. According to *The Lancet* leader writer, the evidence for the value of B.C.G. is better than the evidence of the value of the Salk vaccine. Indeed, there is no statistically adequate evidence for the value of substances used in human prophylaxis other than the foregoing.

The important thing is, what part can B.C.G. play here and now in Queensland? It is my belief that B.C.G. is useful in the following circumstances: (i) for nurses, medical students, doctors, dentists and hospital workers generally; (ii) for contacts; (iii) for aborigines; (iv) for Australians going overseas, including troops; (v) for city dwellers of school-leaving age.

The only real argument against its use is that it negates the value of the tuberculin test in diagnosis, especially in the case of young children. By withholding the vaccine from this group, except in special circumstances, this argument is largely overcome. One can get into equally deep water with regard to the teenager by over-emphasizing the diagnostic value of a tuberculin test, as by ignoring its diagnostic value in a child. Those most vociferous in its criticism are not unusually those who never use a tuberculin syringe.

#### The Future.

It seems very probable that in the western world tuberculosis will shortly become unimportant.

We have seen that there is a natural trend towards disappearance, and that chemotherapy, if it does no more, markedly diminishes the chance of many sufferers infecting other individuals. Thus one dares to hope that, provided

Migration on a really large scale could delay the process (if, for instance, Fred Hoyle's scheme of emptying Great Britain at the rate of a million per year eventuated), but unless we were swamped by a coloured race, it would be possible to cope with even a mass movement of these dimensions.

In relation to the under-developed countries, a forecast must be much more guarded. Industrialization will undoubtedly occur, and with it pressures tending to force the incidence of the disease up.

B.C.G. vaccination is the only large-scale measure likely to have much effect, as imagination boggles at providing the necessary clinics, thoracic surgery units, hospitals, etc., necessary for developing western standards of treatment for the one thousand million or so people in the north.

Eradication here must, in my view, await an improvement of social conditions in general, and it would be foolish indeed to try to forecast the political future of Asia.

Japanese experience leads one to suspect that tuberculosis would probably disappear there more quickly under an authoritative than a democratic regime.

#### Conclusion.

In conclusion, I must express my belief that the control of tuberculosis is worth the money it is costing, but that it will succeed only if every medical man regards himself as an essential member of the public health team and thinks prophylactically.

# THE BLOOD SEDIMENTATION RATE OF VARIOUS RACES IN NORTH QUEENSLAND.<sup>1</sup>

By W. R. HORSFALL,  
Cairns.

THE blood sedimentation rate has been found to be a useful test in estimating the response of the tuberculous to treatment. However, those who have treated tuber-

culosis in the aboriginal and in the Torres Strait islander have observed that, though all other signs of tuberculous activity diminish, the blood sedimentation rate in these races tends to remain at pathological heights.

Figure I shows the blood sedimentation rates of 36 natives, both aborigines and islanders, who had been treated for tuberculosis. The tests were made on the patients' discharge from the convalescent home at Thursday Island. These people were clinically, radiologically and bacteriologically free of symptoms and signs of active pul-

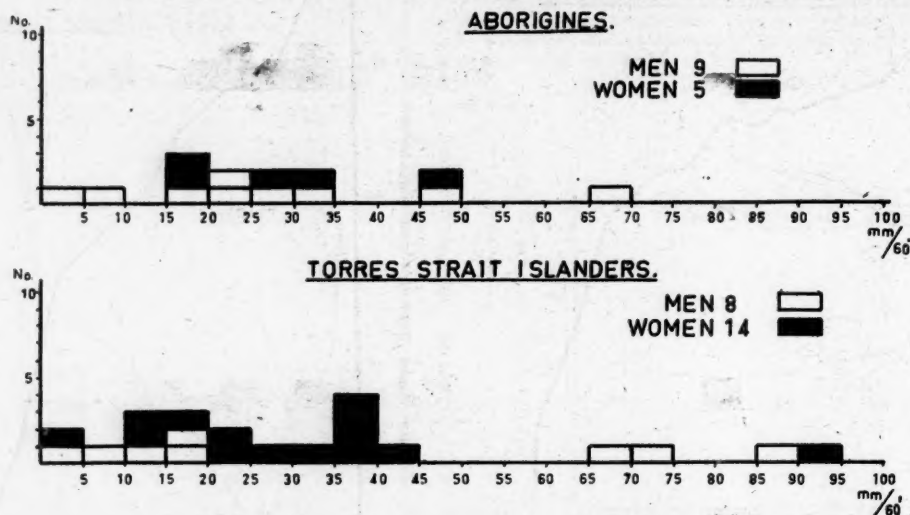


FIGURE I.

Diagram showing blood sedimentation rates of patients with quiescent or arrested pulmonary tuberculosis just prior to discharge from the convalescent home to their own homes. (In this and the following diagrams, readings between 0 and 5 millimetres per hour are grouped together, likewise those between 5 and 10 millimetres, 10 and 15 millimetres etc. Thus, in Figure II, 32 men had a blood sedimentation rate between 0 and 5 millimetres, one man had a reading between 5 and 10 millimetres, and three men had a reading between 10 and 15 millimetres.)

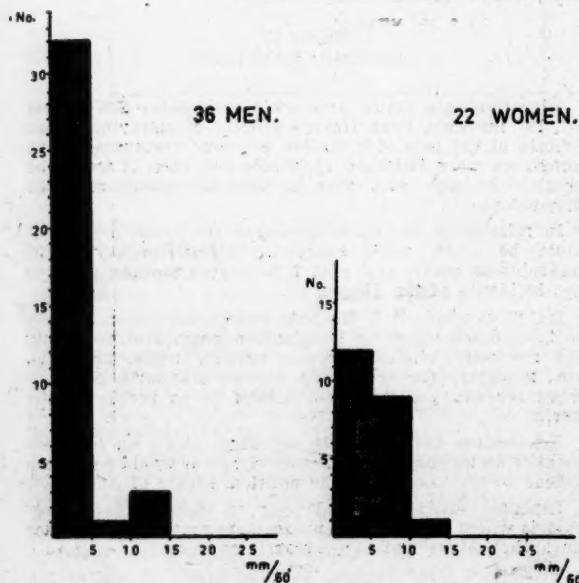


FIGURE II.

Diagram showing blood sedimentation rate readings obtained from European sedentary workers.

<sup>1</sup>Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.

monary tuberculosis. Since their discharge none have been admitted to hospital for recurrence of tuberculosis. These values in both men and women would definitely be considered abnormal according to present-day criteria.

I have carried out a series of blood sedimentation rate estimations on apparently normal people in the north, including Europeans, aborigines and islanders. The Westergren method has been used throughout, and all tests have been carried out in my laboratory, except for those in Figure I and those obtained on Torres Strait island women. For these last-mentioned figures I wish to thank Dr. G. Hales, of Thursday Island.

Figure II shows the readings obtained in European clerical workers, male and female. These results are in keeping with those obtained elsewhere—namely, a normal figure of up to five millimetres in the first hour for men and up to 10 millimetres in the first hour for women.

Figure III shows the results obtained from Torres Strait islanders and from aborigines. There is a marked similarity between the results from the two races, and in both men and women the level is higher than that of the European. The values obtained in the women are very striking.

Figure IV shows the readings obtained from European manual workers. Volunteers were obtained from the water-side workers and from the brewery staff. Many of these results are outside the generally accepted normal limits of one to five millimetres per hour. I have analysed these figures further according to age. It will be seen that in those subjects aged under thirty-five years the results approach the figures I have obtained on clerical workers, and the raised rates are more common in the older persons. It is of interest to note that only seven people in the male



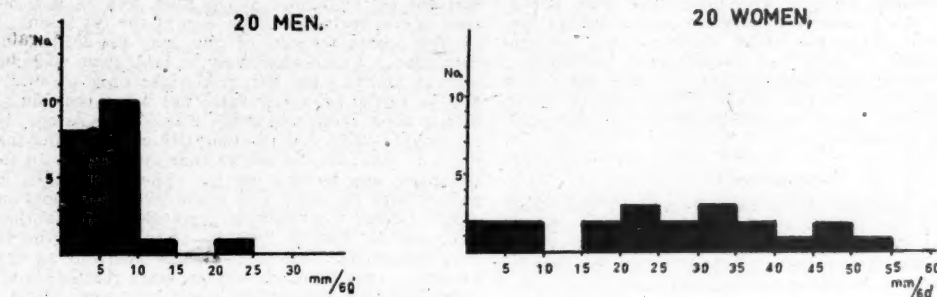
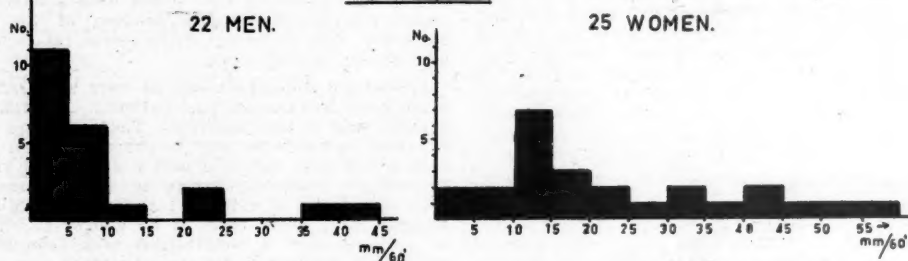
TORRES STRAIT ISLANDERS.ABORIGINES.

FIGURE III.

Diagram showing blood sedimentation rates of Torres Strait Islanders and aborigines.

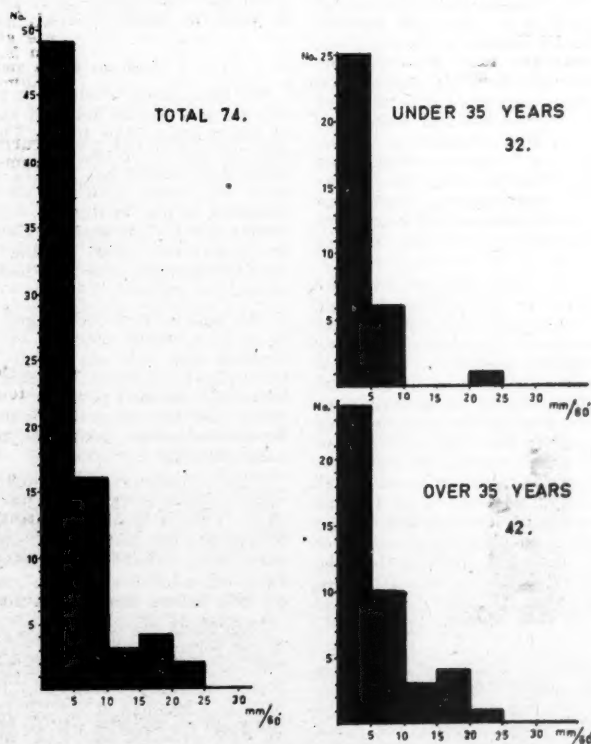


FIGURE IV.

Diagram showing blood sedimentation rates of European manual workers.

clerical group were aged over thirty-five years, and of these two had rates greater than five millimetres in one hour. Many of the manual workers with high rates were heavy beer drinkers, and I suspect that heavy beer drinking for many years may cause the blood sedimentation rate to become abnormal. I have not investigated the matter further. The blood sedimentation rates in this older age group who suffer from tuberculosis fall to normal with adequate treatment; thus they differ from the rates of aborigines and islanders.

#### Conclusions.

These figures indicate that a measurement of the blood sedimentation rate in aborigines and Torres Strait islanders is of little clinical value, and that unless the normal figures for these races are kept in mind, the estimation may be very misleading to the clinician.

This is not the only difference between the blood of these races and that of the European. I have found raised serum protein levels with a greatly increased  $\gamma$  globulin content in the aboriginal. Islanders also show a raised  $\gamma$  globulin content. These differences are sufficiently great to produce positive results in tests of liver function, such as the thymol turbidity test and the colloidal gold test, in the normal aboriginal. We must be careful in diagnosing liver disease in aborigines from the results of these tests.

### PROTHROMBIN DEPRESSANTS AND SODIUM FLUORACETATE IN RAT CONTROL.<sup>1</sup>

By W. R. HORSFALL,  
Cairns.

THE two common species of rats, *Rattus rattus* and *Rattus norvegicus*, appear to have originated in the Orient. They are comparatively new to Europe. The first definite description of the rat in Europe dates from about A.D. 1100. This was the black rat or ship rat, known as *Rattus rattus*. Its spread through Europe was rapid, and it was soon a pest and a source of recurring epidemics. It is a great climber, and it readily took to a life at sea and went with the European explorers of the last few centuries to all the corners of the world. This slender-nosed, long-tailed climber is rapidly being exterminated from its former strongholds by its ferocious, short-nosed, short-tailed cousin *Rattus norvegicus*. This rat appeared in Europe in the middle of the eighteenth century and has rapidly spread everywhere.

From the public health point of view, the great danger from these rats has been disease, notably plague and typhus. Zinsser, in his book "Rats, Lice and History", has shown how greatly the diseases spread by rats and by lice have influenced history. It is well to remember that cases of plague were occurring in Australia as recently as 1923. The regulations of the Commonwealth Government to control rats on ships have been made for the main purpose of preventing plague, and regular fumigation of ships has certainly helped that control. The danger of epidemic diseases being spread by rats is today much less than it was; but a few cases of murine typhus occur every year in Cairns, and there are many cases of leptospirosis in the neighbourhood. None the less, I consider that the great problem created by rats today is in the damage they do, not in the diseases they spread. It has been estimated that in the United Kingdom rats cause £25,000,000 worth of damage a year, and damage in this country is certainly on a large scale.

Fumigation, particularly with hydrogen cyanide, has been moderately successful in controlling rats on ships. Poisoning is the usual method we use to kill rats, and the large number of rat poisons tried speaks for their inefficiency. The rat shows great cunning; he approaches

new sources of food with care, and takes only a small nibble the first time. If the taste is not to his liking, he will not eat any more of the food, and he will be able to pass on his prejudice to the rest of the rat colony. Because of this characteristic of the rat, pre-baiting has been developed. Unpoisoned bait is laid down each night for several nights. On the first night only a small amount will be tasted by a few rats; but when they find that the bait is good, more and more of it will be eaten. When the rat-catcher finds that the quantity of bait being taken each night is constant, he knows that all the rats in the neighbourhood are feeding on it. The next night he mixes poison with the bait, and every rat at its next meal gets a lethal dose. Post-baiting, preferably with another type of bait, can be used to find out if in fact all the rats have been poisoned. This method was used during the war in London. All London sewers were baited, and it was estimated that 95% of the sewer rats were killed. It took several years for the rat population to reach its pre-poisoning level. At the time when the poisoning was carried out, London's food stores were scattered in many small, unratproofed stores because of the danger of bombing. The poisoning of the sewer rat certainly saved much badly needed food.

Pre-baiting, though it can be very successful, requires much good organization and patience. Lip service only is usually paid to the principle. There are two other ways in which bait-shyness may be overcome. One is by using such a poisonous bait that only a nibble will kill. Sodium fluoracetate, commonly known as "1080", is such a poison. This very factor of extreme toxicity limits its use. It can be used only where there is no danger to other animals or humans, and a well-trained man, who realizes the danger, is required to lay it. The other type of poison to overcome bait-shyness is one that will not produce any immediate effect, so that when the rat sickens and begins to die, it will not associate its illness with the food it is eating. Dicoumarol and other prothrombin depressants come into this class. The one usually used in rat control is warfarin, which is a hydroxycoumarin.

#### Sodium Fluoracetate or "1080".

We have used "1080" with great success in ships. Baits can be laid in the holds of ships with little or no danger to other animals or man. The poison can safely be used only in empty ships. A dead rat or a lost bait in cargo could have disastrous results at a later date. In an empty ship the usual food on which the rat lives has been removed and he is hungry. This, I think, is an important reason for its success. Sodium fluoracetate was first used to poison ship rats in this country by the quarantine staff in Brisbane, and they have handed on their knowledge to us.

The usual technique we use is to soak saveloy and apple baits in a strong solution of poison. The baits are then drained and laid on sheets of white paper distributed throughout the holds. An accurate record of the number of baits laid in each position is kept, and care is taken that either the bait or a dead rat is recovered. It is usually found that more dead rats are recovered than there are baits missing.

I have come to the conclusion that the use of "1080" is more successful than cyanide fumigation in "deratting" a ship. I think that there are always a few places in a ship to which a rat can retreat, and into which cyanide cannot penetrate. Cyanide fumigation will certainly decimate the rats; but a few breeders will usually remain, and it will not be long before the ship is infested again.

This leads me to mention one of the most difficult facts in rat control, and that is the rapidity of breeding. A rat reaches maturity in three or four months, it has a gestation period of three weeks, and it averages about eight in a litter. It has five or six litters a year. Anything less than complete eradication will be of only very temporary benefit.

It is a difficult point to prove the superiority of "1080" in ships without adequate and carefully controlled experiments. To make matters worse, the majority of ships in

<sup>1</sup> Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1956.



which we have used the poison have been casual callers and we have not been able to follow them further.

Table I shows the results obtained on five coastal ships. The figures for the *Manunda* show that after the first poisoning with "1080", cyanide has produced fewer rats than subsequent poisonings with "1080". Figures for the *Manoora* and *Bellana* show that an extremely large number of rats were obtained on the first "1080" poisoning. From the *Rona* and *Ulooloo*, rats were obtained by the use of "1080" only six months after cyanide fumigation had produced none.

Dr. H. B. Campston, in Brisbane, has noted the very interesting fact that after "1080" poisoning proportionately more females are recovered than after cyanide fumigation.

TABLE I.  
A Comparison of Sodium Fluoracetate and Cyanide.

Ship.	Date.	Method.	Rats Recovered.
<i>Manunda</i> .	March, 1952.	Cyanide.	98
	September, 1952.	"1080."	33
	November, 1952.	Cyanide.	6
	February, 1954.	"1080."	10
	October, 1954.	Cyanide.	NH
	April, 1955.	"1080."	6
<i>Manoora</i> .	October, 1950.	Cyanide.	11
	January, 1952.	Cyanide.	30
	April, 1953.	Cyanide.	44
	August, 1953.	"1080."	292
	October, 1954.	Cyanide.	NH
	June, 1955.	"1080."	(10 mice) 10 (137 mice)
<i>Ulooloo</i> .	June, 1954. December, 1954.	Sulphur dioxide. "1080."	NH 25
<i>Bellana</i> .	July, 1952.	Cyanide.	32
	September, 1952.	"1080."	130
	February, 1953.	Cyanide.	14
	September, 1953.	Sulphur dioxide.	12
	January, 1954.	"1080."	12
<i>Rona</i> .	October 8, 1952.	Cyanide.	15
	July 5, 1953.	Cyanide.	NH
	January 18, 1954.	"1080."	17

It is suggested that the females have to scavenge more than the males to feed their young, but that they retreat earlier when danger, such as a fumigation, threatens.

I think these figures suggest that "1080" is at least as efficient as cyanide fumigations. As cyanide fumigations are much more costly, I consider "1080" to be a more suitable method of rat control on ships than fumigation. The cost of cyanide fumigation is high, because the whole crew has to remain ashore for the night. No such action is necessary when "1080" is used.

#### Warfarin.

The success we have had with "1080" encouraged me to try it ashore, notwithstanding its extreme toxicity. We overcame the danger of losing baits by wiring each bait so that it could not be moved. We have had some success; but I have come to the conclusion that in normal circumstances the dangers are too great to warrant its use. When I first read of the use of the dicoumarol derivatives as a rat poison, I thought that theoretically at any rate this could be an ideal poison. Subsequent practical experience has confirmed my belief.

Warfarin is a liver poison. It appears specifically to inhibit the formation of prothrombin and to have an entirely reversible effect. As prothrombin circulating in the blood-stream lasts about three days, the poison will not be effective until then, and as the action is reversible a continuous intake must be obtained. Warfarin, unlike dicoumarol, also causes damage to the capillary membrane; this enhances its lethal effect. A single massive dose of warfarin is not necessarily fatal to a rat, and it is most important that the poison be taken regularly. Warfarin has no taste, and rats go on feeding on the poison bait

until death. No prejudice will be built up against the poison. Death is due to hæmorrhage, which may occur anywhere in the body, but often occurs into subcutaneous tissues and peritoneal or pleural spaces.

Warfarin is a very safe poison to use. The greatest safety factor is that a regular intake must be maintained and a single accidental dose will not be fatal. There have been only two fatal human cases of warfarin poisoning, and this was in a family of Koreans who lived on warfarin bait for fifteen days. Two of the family died before treatment, but twelve others recovered, though one of these required a blood transfusion and vitamin K. These deaths appear to have been due to complete ignorance, and it would be impossible for a similar thing to happen in this country.

The practical difficulty in the use of warfarin is a lack of knowledge of the pharmacological action of the drug. Its action is completely different from that of all other rat poisons in common use, and I find that the ordinary person will not lay the baits for a sufficient time and uses too strong a mixture. A sufficient quantity of warfarin must be given daily to inhibit completely the production of prothrombin until all circulating prothrombin has disappeared. More warfarin than this will not be more poisonous, but only wasteful.

The quantities of warfarin required daily per kilogram of body weight are one milligramme in the case of *Rattus norvegicus*, and three to four milligrammes in the case of *Rattus rattus*.

The experiments using "Sorexa" bait containing 1% warfarin are shown in Figure I. I have indicated the number of baits laid, the number of baits taken and the number of rats recovered. The bait was mixed with minced meat in an approximate proportion of 1:20. Number 8 wharf was heavily infested with rats, and much damage had been done to stored goods. After the poisoning, which lasted for a fortnight, I saw no traces of rats for four months. However, they have returned now. The owner of the chicken run knew that there were many rats around, and that there was much harbourage in the surrounding allotments. He had previously obtained phosphorus baits from the City Council, laying up to 100 at a time. Though baits were taken, they did not appear to cause any diminution in the number of rats. I also carried out some baiting at the meat works with success. Baits were laid, among other places, in the hide shed, and large numbers disappeared. It was later discovered that a stray dog had been eating them, and though he took the baits regularly for more than a week, he did not become ill. However, two cats developed bleeding mouths and later died. I did not know before that rats are often found in the cold rooms of meat works, and here they were nibbling at sides of beef, making it necessary to discard whole carcasses. After the poison had been laid for a few nights, no more meat had to be condemned, though we did not recover a single rat from here. At a later date, when a new door was being made into the cold room, it was found that the cork lining had been extensively excavated by the rats, and three dead ones were recovered from the lining. Poisoning was attempted on Fitzroy Island after the death of one of the lighthouse-keepers from leptospirosis. Many rats were killed, and the smell of the dead ones in the houses was overpowering for several days.

In my experiments the initial results were very satisfactory; but I carried out no further regular control, and reinfestation has occurred to a greater or less extent everywhere. This is only to be expected. Adequate rat control is a permanent job.

Warfarin, in the few years for which it has been available, has been remarkably successful. In America it is confidently forecast that warfarin will reduce by at least 75% the damage done by rats. In the United Kingdom, since it was approved by the Ministry of Agriculture in 1951, it has completely cleared rats from thousands of industrial premises, food stores and agricultural land. One of the most outstanding results has been obtained on

St. Helena, the island made famous by Napoleon. Here rats were such a pest that agriculture was impossible. The cultivation of maize and small grains became a hopeless battle, bananas were eaten before they were ready to harvest, sweet potatoes were never safe from the depredations of rats. In 1954 a campaign using warfarin poison was organized to cover the whole of the island. After an area had been successfully poisoned, baiting points were left on the boundary in an attempt to stop reinfestation. In one year the results have been so dramatic that now crops grow unmolested; only isolated pockets of rats have been reported in the treated areas, and these have been wiped out with further baiting.

in helping both the relatives and the alcoholic to understand the nature of his affliction, and has given alcoholics common ground and a common enemy in their battle for emancipation. In understanding the genesis of this condition, however, it is essential to regard alcoholism as symptomatic, in a particular individual, of his inability to withstand certain specific stresses within himself and in his own domestic, community, racial and cultural environment. Alcoholism, then, originates as a symptom and ends as a disease.

#### Why Any Universal Panacea?

Human history abounds in attempts to obtain something for nothing; to obtain in one magic elixir the cure of all

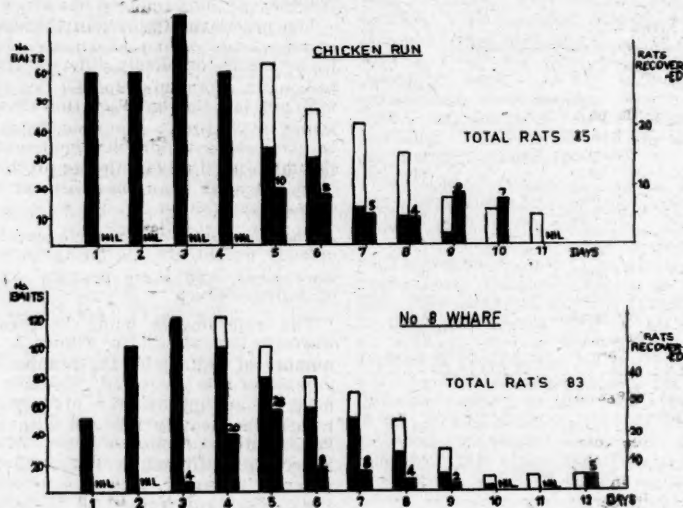


FIGURE 1.

Diagram showing experiments carried out with warfarin. Left hand column above each day indicates number of baits laid. Right hand column indicates number of dead rats recovered. (Total number is also written in figures above column.) Unshaded area indicates number of baits recovered.

It would have been impossible to obtain these results with the rat poisons that were available before the introduction of warfarin. Warfarin makes all other poisons, with the exception of "1080" in ships, outdated.

### THE PSYCHOLOGY OF ALCOHOLISM.<sup>1</sup>

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In this paper I shall concern myself largely with an attempt to elucidate the factors concerned with the development of alcoholism, and shall discuss the light this understanding may shed on therapy.

Alcoholism has been defined on the one hand as "the addiction to or the habitual and compulsive drinking of large quantities of alcohol", and on the other hand as "the various syndromes resulting from the ingestion of alcohol". The former definition implies a process or a symptom, and the latter a disease. Which is it?

When we meet the fully-fledged condition in medical or psychiatric wards, it is hard to think of it as other than a disease entity. This concept of a specific disease has, in the hands of Alcoholics Anonymous, proved of great power

physical ills and the solution of all those difficulties which perplex the mind and torment the soul of mankind; and to achieve these things without fail and with the minimum of effort. The water of life, the philosopher's stone, the League of Nations, homeopathy, Christian Science, socialist doctrine, the tonics and, nearer home, hypnosis, psychoanalysis or the electric shock box have all had their devotees.

It is clear that either we must change the world around us to our own specifications or procure for ourselves a pair of spectacles of the right hue and refraction to tinge subjective appreciation of harsh realities with optimism, or at least with calm resignation or indifference. The only alternative is a long, continuous and arduous process of self-criticism and of personality and character adjustment, and the development of specific and apt behavioural patterns for new situations and problems.

The search for and the chance discovery of substances having a profound effect on cerebral physiology have, in every culture and throughout all periods of human history, produced numerous drugs which offered a way of escape. Escape is not in all circumstances either unwise or cowardly. Those too old to change and too ill to fight come to mind, and numerous merciful and potent drugs reside in our armamentarium—morphine for the intractable pain of fatal illness, sedatives for the distressed, hypnotics for the weary. Alcohol is probably not inferior to other drugs as a hypnotic. As an aid to civilized living and social intercourse, and as a reliever of tension and mistrust at international gatherings, it is probably without peer. But, as

<sup>1</sup>Read at the North Queensland Medical Conference, Cairns, June 25 to 30, 1953.



with every drug, the therapeutic indications, the uses and abuses, the risks and the development of addiction must be carefully weighed.

### Why Alcohol?

#### Ease of Procurement.

Substances such as hashish, coca leaves and mescal leaves have obviously had a limited geographic distribution. The spontaneous fermentation of diverse carbohydrates by adventitious yeasts has been discovered independently in many ages and cultures. The fact that a stable article of diet is usually concerned leads to early discovery of the intoxicating effects.

#### Social Acceptance, or at Least Lack of Censure.

In Australia today, beer is "a man's drink", and the ability to drink faster and more copiously than your fellow, a virtue. Other drugs are largely taboo. Thus most users of alcohol are perfectly normal people who do what is expected of them.

Most addicts of other drugs are psychopathic, degenerate, defective, social outcasts, gross hedonists. This relates to their rapid deterioration and difficulty of treatment. An interesting exception is that of women. In many "Victorian" households the taboo against women drinking still holds; their guilt often drives them to seek relief in barbitone group drugs medically prescribed, so that chronic barbitone addiction is commoner among women than among men.

On the other hand, in China (at least until recent times) opium smoking was not severely censured. One offered an opium pipe to a friend as we do a drink, and many successful business men and eminent persons were partakers for many years without either severe addiction or rapid deterioration. Perhaps the dregs of society were there found among the alcoholics.

The easy, bland and carefree community acceptance of alcohol in this country is one of the prime social factors leading to alcoholism. Its use in high-school and teen-age parties is considered smart in certain circles. No other potentially dangerous drug is used with such abandon. In France, pre-school children have presented with cirrhosis of the liver, and in Australia it is not uncommon to meet confirmed alcoholics aged under twenty-one years. It is our province to set those standards of social behaviour which we wish to see in our own children.

#### Attitude to Life.

In communities where introspection, lazy contemplation and a happy-go-lucky *mañana* attitude exist, we find opium and mescal enshrined. In Western Europe, and even more in the United States, where extroversion is almost equated with normality, the necessity to be a half-fellow-well-met, back-slapping go-getter has doomed many unfortunate introverts to the bottle in order to compete socially with their fellows. There is no longer time to fill a pipe, and cigarettes and tension-relieving pills are a necessity.

#### Economic Factors.

The alcohol trade is a big and established business, and now continues with its own momentum.

### Why Drink?

There is no doubt that the act of drinking is in itself pleasant to the adult, much as suckling is to the infant. Freud has suggested that many drinkers are seeking the peace and contentment they once derived at their mother's breast. Deprivation of affection certainly exists in some cases, and attempts to supply it in other ways may be worth while.

And, of course, tenderness and skill have been lavished on some alcoholic concoctions that would put any manufacturing chemist to shame. I can never sip the "veritable" Benedictine without conjuring up a delightful picture of little cowed figures labouring fondly over still and flagon. No "Elixir Benzedrine Co." could hope to compete, no unguent of opium produce such balm.

Now we shall pass from the more normal and generic reasons for the drinking of alcohol to the less normal and individual reasons affecting a particular subject.

#### Physical Reasons.

I am dealing here with primary disease processes and not with those resulting from addiction to or withdrawal of alcohol. The physical reasons for drinking may be stated as follows: (i) For relief of pain. Ethyl alcohol holds millenniums of precedence over ethyl ether in this respect. (ii) For physical discomfort. "A little gin for your periods, dearie", has been a time-honoured recipe, and one which is fraught with danger in susceptible subjects. (iii) As a hypnotic. A hot toddy on going to bed is often a safe and effective remedy for insomnia in the elderly person of sound personality structure, but may be a hazardous experiment in the young. (iv) As an aid to appetite. A glass of beer, stout, or dry sherry before meals is probably more effective than *Mistura Gentianae Alkalina* or any other pharmacopoeial bitter, but must clearly be prescribed with great discretion.

#### Psychological Reasons.

There is no defect of intelligence or personality, no emotional conflict or psychoneurotic illness, no psychosis—organic, depressive or schizoid—which may not be associated with alcoholism as a cause, as a precipitating factor, as a symptom or as a complication.

The insecurity and fears associated with war, poverty, and illness have traditionally been drowned in alcohol. The boredom of success, high living standards, good times and short working hours is no less culpable. In Australia today the cry of "*panem et circenses*" might be better symbolized as "beer and skittles". The remedies are social and obvious; their realization is difficult.

The personal emotional conflicts, fears, loves and aggressive urges of the psychoneurotic often find temporary solution or outlet in drink. The solution is a hazardous one, and cause, effect and new cause often become inextricably tangled. It may be said that when the problem and the drinking are both acute and recent, immediate psychotherapy and environmental adjustments take pride of place in treatment. When the problems are chronic and longstanding, and have been habitually solved by alcoholic intake, the treatment of the alcoholism takes pride of place, and no deep probing or constructive psychotherapy is possible until the patient's pharmacological solution of his problems has been abandoned.

In psychosis, the patient with an organic lesion (general paralysis of the insane, cerebral tumour, myxedema, arteriosclerosis, presenility) often has some insight into his progressive loss of intellectual efficiency, and increasingly resorts to alcohol to bolster his self-esteem and apparent capacity. When no specific remedy is apparent, a planned reduction in his environmental demands, eventual retirement, and later loving family care or appropriate institutional care in a general or mental hospital or an eventide home, are apt.

The patient with a cyclical depressive psychosis sometimes gives a history of periodic dipsomaniac bouts, coinciding in time with the onset of severe depression. If he can be persuaded to present for treatment early in his depression, a few electroshock treatments may avert his dipsomaniac episode. It is essential to decide which comes first, the depression or the desire for drink; the "endogenous" dipsomaniac frequently complains of increasing tension, restlessness and misery as he first realizes and fights against his recurrent craving, and most dipsomaniacs unfortunately fall into this category and seldom report for help until their bout is established.

The schizophrenic is often well known to his physician prior to frank breakdown as a reserved, quiet, shy, incoherent, introverted, rather apathetic fellow, for whom the term "schizoid personality" has been created. Such a one, if placed in a competitive, socially demanding environment, often has recourse to alcohol to compete with his fellows on equal terms. An acute schizophrenic reaction

often follows. A short period of conservative and expectant treatment in a general or psychiatric ward is usually justified; but a true endogenous schizophrenia has often been precipitated, and demands appropriate therapy with electroshock and insulin coma.

The patient who is defective mentally or who suffers a fundamental and long-standing personality defect often presents the most intractable, severe and therapeutically difficult problem, and the results of his drinking are the most antisocial and alarming.

The condition is often lifelong and incurable, the result of drink definitive and disastrous, in the inadequate, the aggressive trigger-man, the psychopath and thug, the glib-tongued habitual thief, the joyrider, the confidence man, the backward incendiary, sexual deviants, misfits, racial and social outcasts, prostitutes and radicals. Some of these sufferers find solace in Alcoholics Anonymous or the church, others in jail. A half-way protected and semi-restricted institutional life, a community of psychopaths, is required.

Perhaps the largest and most important group of all alcoholics is made up of normal but rather immature men whose emotional development has been retarded at the "man's man" stage of development. Good army canteen and messmen, good shipmates, good sportsmen, good clubmen, good lodgers, good mates, good fellows all, they prefer the company and conversation of their own to that of the opposite sex—in their youth without, and later with, the stimulus of alcohol. They behave together much like overgrown schoolboys. They will leave the lounge for the brass rail at licensed establishments, and at mixed parties congregate around the beer keg and the whisky decanter. They are encouraged by the smoking room-drawing room conventions of our Victorian ancestors, by war and gold rush, and by any new "man's country", like North Queensland. They are fostered by male taboos and drinking conventions and the Philistine and archaic drinking hours which in some States led to the "six o'clock swill". Some immature drinkers need psychiatric counselling to aid their emotional development and maturity. Coeducation, increased opportunities and increased emphasis on social intercourse between the sexes, civilized mixed drinking at sidewalk cafés, and ritual evening-long dinners with mixed company and good conversation would all help, as would increasing emphasis on the role of the woman in our society—a trend toward matriarchy and the importance placed by the troubador on his lady as important in his life and community affairs.

Strong family groups, with mutual encouragement and security and a strong religious faith, appear to control excessive drinking in our Italian community.

There is one further problem: the drinking of the lonely but normal male of our outback—ringer, shearer and miner. When he comes to town, he can only seek the warmth, companionship and relief from boredom of the public bar. There is nothing else. Hobbies, interests, sporting and adult education facilities and periodic emigrations of charming and eligible spinsters are required to upset the balance of power.

#### Why Drink to Excess?

Many drink to excess because (i) they like it, (ii) if quantity  $X$  gives  $Y$  release from tension, then it is expected that quantity  $2X$  will give  $2Y$  release from tension. The nature of the drug is such that even those who know this equation to be faulty do not care after quantity  $X$  anyway. Few drinkers can count beyond six to eight beers, and none beyond twelve. A third reason why some drink to excess lies in social habits, licence or even approval.

#### Why Habitual Drinking?

The basic cause of habitual drinking is long-standing, permanent, incurable problems—old problems increase, new problems are added. Alcohol takes an increasingly important role in the drinker's life pattern, becomes a source of friendship, a hobby and a recreation. Without

it he has nothing and is lost. Physical addiction occurs. Alcohol becomes part and parcel of the alcoholic's metabolic processes and food habits, and marked withdrawal effects follow attempts at relinquishing it. The stage of physical and mental impoverishment and of character and personality change finally supervenes and renders the sufferer impotent to change himself or to modify either his problems or his environment.

#### The Problem of Treatment.

If we take a broad view of the established, advanced and hopeless case, then rational therapy follows in reverse, along the following lines: (i) A long stay in hospital or an institution, to allow the maximum salvage of wrecked physical and mental resources. (ii) The breaking of addiction and the teaching of abstinence—supply of substitute interests, hobbies, friendships. This was the missing link in the chain which has been so aptly supplied by Alcoholics Anonymous. (iii) Correction of the individual precipitating factors in each case—social, domestic, physical and psychological. In many cases, of course, treatment can commence at stage (ii). If the problem can be handled at stage (iii) alone, then probably the patient may be classed as a heavy drinker, but not yet an alcoholic.

There is much divergence of opinion even among experts, as the following anecdote will show.

An English, French and a Scotch pathologist met at a Highland hostelry. The Englishman produced three glasses and a bottle of Scotch whisky. He apologized for the absence of beer, stating that he was of the opinion that wine and whisky frequently led to cirrhosis of the liver. The Frenchman demurred, saying that certainly whisky and beer might be culpable in that respect, but a good claret or burgundy, never. The Scotchman fondly filled his glass and, draining it neat, opined that beer and wine produced cirrhosis beyond doubt, while inferior foreign whiskies might produce cirrhosis at times; but for his part he was sure that the "genuine Scotch" never gave anybody anything.

## Reviews.

**Eleven Lourdes Miracles.** By D. J. West, M.B., Ch.B., D.P.M.; 1957. London: Gerald Duckworth and Company, Limited. 8½ x 5½", pp. 144. Price: 15s.

This book is the most recent of many that have been written analysing the miracles of Lourdes. Dr. West considers only those cures which have been accepted by the Roman Catholic Church, and which have occurred since 1937. His analysis is entirely objective on the evidence available, and is obviously not coloured by any religious bias.

The first chapter deals with the background of the Lourdes miracles dating back to 1858. At present over 3,000,000 pilgrims and in excess of 20,000 sick persons visit Lourdes each year; and whilst many of the latter may benefit, only a very small number eventually have their cure accepted as miraculous. In fact, the eleven miracles officially accepted occurred between 1937 and 1952. The cases for consideration are investigated first by the Lourdes Medical Bureau, with the assistance of reports from doctors who have previously been in attendance, or who have cared for the patient subsequently. If the doctors of the Medical Bureau are satisfied, the case is passed to the International Medical Commission at Paris. The Commission on an average accepts only about one in three cases referred to it, and then passes these on to the Canonical Commission, where further rejection may take place. It seems, therefore, that each claim for miraculous cure is normally examined very thoroughly by three successive "tribunals" before being accepted.

The second and third chapters deal in principle with the assessment of faith cures and the psychological factors. The fourth chapter deals in detail with each of the cases separately. The accounts are very detailed, including verbatim reports. In the fifth chapter the author considers the cures in general, and comments in detail. In every case he makes convincing points as to why he does not regard the cures as miraculous. Some of his remarks about medical



reports are extremely critical, and we consider justifiably so. Particular reference is made to the prevalence of tuberculosis in the cures, and also cancer and rapid healing of wounds.

In his concluding chapter, the author makes a plea that the Lourdes Medical Bureau should concentrate on the scientific study of whole groups of sick pilgrims, instead of bolstering up uncertain interpretations with authoritarian pronouncements.

An appendix contains a list of the accepted cures from 1925 onwards and a glossary very helpfully explains medical terms for the lay reader.

The question of spiritual healing is one which we consider is worthy of increased study by doctors and others, as an aid towards healing the "whole" man. For those so interested, whether cleric, doctor or layman, this book should prove interesting and helpful.

**Advice to the Expectant Mother: On the Care of Her Health and That of Her Child.** By F. J. Browne, M.D., D.Sc., F.R.C.S.E., F.R.C.O.G., and J. C. McClure Brown, B.Sc., M.B., B.S., F.R.C.S.E., F.R.C.O.G.; Eleventh Edition; 1957. Edinburgh and London: E. and S. Livingstone, Limited. 7" x 4½", pp. 48, with illustrations. Price: 1s.

This is an ideal booklet for the modern mother, as it provides information essential to her well-being succinctly and clearly. As almost every mother is prepared to do everything possible to ensure her baby's health at birth, every obstetrician must provide sufficient information for the mother, in order to gain her understanding and cooperation in faithfully observing his instructions during her pregnancy. No amount of skill on the part of the obstetrician can protect the expectant mother from toxæmia and eclampsia, unless she herself is interested and is willing to continue to seek regular ante-natal care. This little booklet fulfils this purpose admirably.

The eleventh edition in fact epitomizes the new outlook in modern obstetrics, in which the expectant mother herself has moved in to the centre of the field as an informed participant.

A wide variety of important information is provided, so that the expectant mother can be made aware of such important matters as preparation of the breasts and the significance of various signs and symptoms. Of special value is chapter V, which gives a short, graphic story explaining some of the essential features of pregnancy and labour.

**Surgery of the Anus, Anal Canal and Rectum.** By E. S. R. Hughes, M.D. (Melbourne), M.S. (Melbourne), F.R.C.S. (England), F.R.A.C.S.; 1957. Edinburgh and London: E. and S. Livingstone, Limited. 9½" x 6½", pp. 316, with 276 illustrations. Price: 50s.

ONE has been accustomed to seeing well-illustrated and informative articles from the pen of this author. It is very pleasing now to see a well-illustrated and excellently produced book written by him. It is essentially a practical book, dealing with common surgical problems in a region which has received his special attention and study for many years. The clarity of his thinking and his practical approach to these problems are borne out by the clarity and quality of his own line drawings, used to summarize and highlight important points in the pathology or treatment of the various lesions.

The initial chapters on the surgical anatomy of the anal canal and rectum and the symptomatology and investigation of ano-rectal disease lay a solid foundation for the subsequent chapters dealing with the various pathological conditions in more detail.

An excellent chapter on ano-rectal suppuration is followed (and quite rightly) by one equally as good on *fistula-in-ano*. The author's nomenclature and classification of fistulae vary from the accepted, as does his technique of primary skin coverage of the operation wound by split-thickness skin grafting. The rapid healing of the wounds obtained by this method is an interesting surgical (as well as economic) advance in the treatment of this difficult condition. He also advocates excision with primary skin grafting as the best method for anal fissure.

No one could fail to grasp the essentials in the pathology and management of hemorrhoids after reading yet another beautifully illustrated chapter. Rectal lesions—mechanical, inflammatory and neoplastic—are covered by the remaining chapters.

The standard of publication is of a high order, and the subject matter is so presented that this book will have universal appeal to medical student, general practitioner and specialist surgeon. The systematic manner in which each subject is covered, plus the quality of the diagrams and clarity of the photographic illustrations (both of which appear in perfusion), makes it a pleasant book to read, and a good practical guide to the management of some very common problems in medical practice.

**The Plea for the Silent.** With an introduction by Dr. Donald McL. Johnson, M.P., and Norman Dodds, M.P.; 1957. London: Christopher Johnson. 7½" x 5", pp. 176. Price: 12s. 6d.

THIS book contains eight accounts by anonymous authors, all of whom were at one time certified patients in British mental hospitals. In the introduction it is suggested that two or three of the authors appear to have been incarcerated unnecessarily and for too long, and that none were treated in the way most conducive to the improvement of their mental health.

The first tale is perhaps the most curious. The author alleges that he was certified and peremptorily removed from his home on the basis of having an "obsession that his wife is in dire straits after an operation and that the hospital is to blame". For how long the patient was confined is not precisely stated, but this appears to have been for a period in excess of at least four weeks.

Accounts of this kind are notoriously difficult to analyse fairly, because of their obviously one-sided presentation. If the patient was not in need of treatment, it is to be wondered why his wife did not apply for his discharge into her care, unless, of course, she did so and a barring certificate was issued by the medical superintendent. There is, however, no mention of any such occurrence.

While we have never seen a patient wrongly certified and detained in a mental hospital for such a period, this is not to say that such an injustice cannot occasionally occur. Such a happening must, however, be extremely uncommon.

In the remaining accounts there is less to suggest that this type of injustice was done. Nevertheless, the stories do throw some light on unsatisfactory conditions which exist in some mental hospitals, and which cannot be denied. Although it is claimed that officially such conditions are whitewashed, this is not altogether correct. Indeed, Dr. A. M. Spencer, a superintendent of a mental hospital, stated in the *British Medical Journal* of June 1, 1957, that "mental hospitals were unfit for human habitation and quite inadequately staffed . . . there was no privacy, no culture; people became dehumanized in the vast mid-Victorian wards". With this many would agree while admitting a great variability of conditions.

If this book does something to force the British Government to take steps to improve existing conditions, then it will have achieved a purpose. It is doubtful, however, whether it will produce such an effect, not because of bureaucratic immutability, but because none of the accounts contained in it are sufficiently forceful or well substantiated to arouse strong pressure from public opinion. These, as is stated in the introduction, are the words of "the grievance committee" unable otherwise to obtain a hearing. The uncritical and somewhat naïve acceptance of these grievances by the two Members of Parliament who sponsor this volume will hardly do much to further what is basically a sound cause.

**Synopsis of Gastroenterology.** By Rudolf Schindler, M.D., F.A.C.P.; 1957. New York and London: Grune and Stratton. 9" x 6", pp. 416. Price not stated.

IN his preface to "Synopsis of Gastroenterology", the author states that his chief intention is to provide a practical guide for the management of patients with alimentary tract disorders. Dr. Schindler is well known as an authority on gastroscopy and as an author of two monographs—"Gastroscoopy" and "Gastritis". He has now shown that these special interests were studied against a wide experience with the diagnosis of disease and the management of patients, and an acquaintance with the work of others both at home and abroad. The book opens with a chapter on symptoms and lesions due to disorders of other systems, then discusses aetiology, symptoms and examination. Chapters on the various organs follow, then a summary on animal poisons and parasites, and finally a review of general aspects of treatment. Dr. Schindler's attitude is essentially conservative, and he has achieved his aim of a

clear and comprehensive book on the practice of gastroenterology.

The chapter on stomach and duodenum is the fullest, dealing with gastritis and ulcer in greater detail than is given to many other topics. The section on ulcer is sound and conservative. Here, as elsewhere, the author is orthodox in his attitude to psychological factors in aetiology, but vigorous in urging deliberate psychotherapy. Except once, he avoids the futile yet oft-repeated advice not to worry. Dogmatic indications for operation are not laid down; but its place is discussed in the section on the management of complications and of intractability of the patient. Penetration as a factor in intractability is not mentioned.

Some statements are open to question. Australian readers will be upset to learn that hydatid disease is due to poor sanitation rather than to lack of control of offal and dogs. Venesection is not given as the treatment of hæmochromatosis. Simmonds's disease rarely causes cachexia, although this is stated twice in the book. The author discusses hypertrophic gastritis at length, although the existence of this lesion as a common entity is open to grave doubts. There are a few unfortunate misspellings and typographical errors. However, this criticism stems from the strength of the book, for Dr. Schindler has given us the benefit of his own experience in his "Synopsis of Gastroenterology".

## Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Textbook of British Surgery", edited by Sir Henry Souttar, C.B.E., D.M. (Oxon.), F.R.C.S., and J. C. Golligher, Ch.M. (Edin.), F.R.C.S. (Edin. and Eng.); Volume II: The Central Nervous System; The Eye; Ear, Nose and Throat; Mouth, Salivary Glands and Jaws; Neck; The Breast; The Oesophagus; The Heart and Lungs. 1957. London: William Heinemann (Medical Books), Limited. 9½" x 7½", pp. 704, with 348 illustrations. Price: 105s.

The second of four volumes.

"A Pocket Obstetrics", by Arthur C. H. Bell, M.B., B.S., F.R.C.S., F.R.C.O.G., Hon. M.M.S.A.; Fourth Edition; 1957. London: J. and A. Churchill, Limited. 7½" x 4½", pp. 164, with 15 illustrations. Price: 10s. 6d.

A revision of the previous edition published in 1953.

"Biological Aspects of the Transmission of Disease", edited by C. Horton-Smith; 1957. Edinburgh and London: Oliver and Boyd for the Institute of Biology. 8½" x 5½", pp. 194. Price: 36s. 9d.

A symposium with contributions from botanists, zoologists and medical and veterinary scientists.

"The Normal Child: Some Problems of the First Five Years and Their Treatment", by Ronald S. Illingworth, M.D. (Leeds), F.R.C.P. (Lond.), D.P.H., D.C.H.; Second Edition; 1957. London: J. and A. Churchill, Limited. 9½" x 6", pp. 368, with 69 illustrations. Price: 33s.

Completely revised and partly rewritten since publication of the first edition in 1953.

"Unexpected Reactions to Modern Therapeutics: Antibiotics", by Leo Schindler, M.D.; 1957. London: William Heinemann (Medical Books), Limited. 7½" x 5", pp. 160. Price: 15s.

An account of the side-effects of the main antibiotics.

"Animals Parasitic in Man", by Geoffrey Lapage; 1957. Mitcham, Victoria: Penguin Books. 7½" x 4½", pp. 320, with 67 illustrations. Price: 7s. 6d.

"An illustrated, non-technical account of the parasitic animals which afflict man, their life histories, and how the human body fights them."

"Accidents in Childhood: Facts as a Basis for Prevention"; Report of an Advisory Group; World Health Organization Technical Report Series No. 118; 1957. Geneva: World Health Organization. 9½" x 7", pp. 46. Price: 1s. 9d.

A preliminary study of the problem.

"The Diagnosis and Treatment of Pulmonary Tuberculosis", by Paul Dufault, M.D., with a chapter on pathology by A. Reynolds Crane, M.D., and a chapter on pulmonary function by Oscar Feinsilver, M.D.; Second Edition; 1957. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 7½" x 5½", pp. 428, with 162 illustrations. Price: 95s.

Concise and practical information revised to the time of publication.

"Taylor's Principles and Practice of Medical Jurisprudence", edited by Sir Sydney Smith, C.B.E., LL.D., M.D. (Edin.), Hon. M.D. (Louvain), D.P.H., F.R.S. (Edin.), assisted by Keith Simpson, M.D., Lond. (Path.). "The Legal Aspect" revised by Gerald Howard, Q.C., M.P., "Psychiatry and the Law" contributed by David Stafford-Clark, M.D., M.R.C.P., D.P.M., "The Chemical Aspect" revised by L. C. Nickolls, M.Sc., A.R.C.S., F.R.I.C. Volume II; Eleventh Edition; 1957. London: J. and A. Churchill, Limited. 9½" x 6", pp. 652, with 47 illustrations. Price: 80s.

This volume deals with sexual medical jurisprudence and toxicology.

"The Medical Annual: A Year Book of Treatment and Practitioner's Index", edited by Sir Henry Tidy, K.B.E., M.A., M.D. (Oxon.), F.R.C.P., and R. Milnes Walker, M.S. (Lond.), F.R.C.S.; 75th Year; 1957. Bristol: John Wright and Sons, Limited. 8½" x 5½", pp. 641, with 52 plates. Price not stated.

Still a useful volume after three-quarters of a century.

"Physical Working Capacity in Conscripts during Military Service: Its Relation to Some Anthropometric Data: Methods to Assess Individual Physical Capabilities", by Klas Linroth; 1957. Stockholm: Acta Medica Scandinavica, Supplement 324, accompanies Volume 157. 9½" x 7", pp. 138, with 12 illustrations. Price: 45 Sw. crowns or U.S. \$5.75 per volume.

The results of an investigation carried out for the military authorities in Sweden.

"Annual Epidemiological and Vital Statistics, 1954"; World Health Organization; 1957. Geneva: World Health Organization. 11" x 8½", pp. 620. Price: £2 10s.

Reflects the vital statistics and state of health of the world.

"Reflex Vasodilatation of the Fingers in the Study of Peripheral Vascular Disorders: With Special Reference to Diabetes Mellitus", by Kjell Sigroth; 1957. Göteborg: Acta Medica Scandinavica, Supplement 325, accompanies Volume 157. 9½" x 7", pp. 125, with seven illustrations. Price: 45 Sw. crowns or U.S. \$5.75 per volume.

The results of an investigation.

"Collected Papers of the Mayo Clinic and The Mayo Foundation", edited by Richard M. Hewitt, B.A., M.A., M.D., John R. Miner, B.A., Sc.D., James R. Eckman, A.B., M.A., Ph.D., M. Katharine Smith, B.A., Carl M. Gambill, B.A., M.D., M.P.H., Florence L. Schmidt, B.S.E., George G. Stillwell, A.B., M.D., and Guy Whitehead, B.A., M.A., Ph.D. Volume 48, 1956; 1957. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9½" x 6", pp. 786, with many illustrations. Price: £6 5s.

The material in this volume has been selected primarily with the interests of the general practitioner, the general surgeon and the diagnostician in mind.

"Emergencies in General Practice": specially commissioned articles from the *British Medical Journal*, January, 1955 to June, 1956 (fully revised); 1957. London: British Medical Association. 8½" x 5½", pp. 480, with illustrations. Price: 25s.

A series of articles reprinted from the *British Medical Journal*.

"Prevention of Rheumatic Fever: Second Report of the Expert Committee on Rheumatic Diseases"; World Health Organization Technical Report Series No. 125; 1957. Geneva: World Health Organization. 9½" x 7½", pp. 28. Price: 1s. 9d.

A review of the problem with recommendations for the future development of national and local rheumatic fever prevention programmes.

"Clues to Suicide", edited by Edwin S. Shneidman, Ph.D., and Norman L. Farberow, Ph.D., with a foreword by Karl A. Menninger, M.D.; 1957. New York, Toronto, London: The Blakiston Division, McGraw-Hill Book Company, Incorporated. 8½" x 5½", pp. 240. Price: \$5.50.

Eighteen papers dealing with the theoretical background of suicide and the practical approach to management of the problem.



## The Medical Journal of Australia

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### PSYCHOTHERAPY IN GENERAL PRACTICE.

WITHIN the last few years, with the growth of interest in the subject, an increasing number of books and articles has appeared in Britain and Australia on psychotherapy in general practice; but a recent book by Michael Balint<sup>1</sup> breaks new ground in reporting a unique experimental approach to the problem. Balint, a consultant psychiatrist of the Tavistock Clinic, realizing that reliable intimate data on this work could be provided only by those who were doing it, organized a training group of 14 general practitioners, who met once a week for three years under his leadership. At these meetings the individual members made progressive reports on, and discussed and criticized the treatment of, psychiatric patients currently under their care. The prime object of the project was research into the nature of the psychological reactions between patient and doctor in psychiatric cases in general practice, and into the ways in which these influenced the course and decided the outcome of the treatment. As there has hitherto been no established method for training general practitioners in psychotherapy, this group was used as a basis for the practical empirical training of its members and for a pioneer experiment in such training work.

An outstanding feature of Balint's book is the series of excellent verbatim reports on 28 illustrative psychiatric cases from the practices of the various members. These include the original presentation by the doctor in charge, keen discussion, criticism and suggestions by the whole group on both the features of the case and the treatment employed, and subsequent progress reports with further discussion as the treatment was continued, at times intermittently for many months, with its varying successes and failures. As camaraderie developed, the discussion became very free and uninhibited. The group leader often made valuable contributions and sometimes exercised a directive influence on it, but he never dictated its course. Each doctor presenting a case retained full responsibility for accepting or rejecting the advice offered according to his judgement, his personality and his individual technique in dealing with patients; but he was expected periodically to report on, and to discuss with the group, the progress and the results of his treatment. Some members were more psychiatrically minded than others, and one or two

were fairly well read in the specialty. It is interesting to note, in the early stages of the group's work, how hesitant and inexpert some of the members were to undertake the treatment of easy neuroses that they had diagnosed quite correctly in their regular patients, and to watch how progressively and rapidly they learned to do this under the stimulus and example of their fellows. But later on there were several who were so eager and adventurous as to undertake the treatment in and responsibility for most difficult and anxious cases, and there are recorded two or three histories of successes in these such as any psychiatrist might well be proud of.

English practitioners seem to have more frequent recourse to specialists of all kinds than their more independent counterparts in Australia. These records show how futile much of their advice was in these psychiatric cases. Especially is this true of the psychiatrists, who often gave no more assistance to the general practitioner than to put a name on the illness and advise sedation and supportive treatment. The conviction grew that the role of the consultant should be that of expert assistant to rather than mentor of the general practitioner. Balint asserts categorically that in general practice in England "at least 25%" are cases of neurosis; but this is a considerably higher percentage than careful surveys have indicated in both England and Australia. The presence of the National Health Service in England may account for a higher percentage in that country; in any case, it certainly makes easier the kind of treatment initiated in this clinic. It is economical and easy for a doctor there to give a series of long interviews to a panel patient when these are going to lighten the drudgery of his work on such a patient for years to come; but for an Australian doctor who cannot charge specialist fees, it will mean economic loss. Certainly the thesis is overwhelmingly established that this mass of therapeutic work can be done only by the general practitioner. Psychiatrists are far too few to tackle even a tithe of it, and, moreover, they are for the most part neither primarily trained for nor interested in that level of work. It is only general practitioners who are familiar with the intimate medical history and total personality of these patients, and who thus are in a position of advantage to deal with "the deeper level of their diagnosis which is the problem of general practice"; but "the acquisition of the requisite psychotherapeutic skill inevitably entails a limited though considerable change in a doctor's personality". This training is not found in any academic course. All the members of the course conducted by Balint found that, as a result of the deeper insight and increased skill they had achieved, their responsibility in practice had become heavier. But "without exception they found their work incomparably more interesting and more rewarding; and none of them would have considered going back to their old ways and techniques".

Balint sums up by giving invaluable suggestions and advice from his experience in this class for any post-graduate organization that may contemplate initiating similar research and training work.

There has, of course, been a strong interest shown in psychotherapy in general practice in Australia, although it is difficult to know just how widespread the interest is.

<sup>1</sup> "The Doctor, His Patient and the Illness", by Michael Balint, M.D.; 1957. London: Pitman Medical Publishing Company, Limited. 8½" x 5½", pp. 368. Price: 60s.

It was the subject of a discussion<sup>1</sup> at the last session of the Australasian Medical Congress held in Sydney in 1955, and a paper read on that occasion by M. G. Jansen has recently been published.<sup>2</sup> Jansen makes out a strong case for the essential role of the general practitioner in the programme of psychotherapy, especially in the early stages, and presents an encouraging account of his own experience. It is quite true, as H. O. Chapman conceded in the discussion which followed the presentation of Jansen's paper at Congress, that many doctors are temperamentally unsuited for this work, just as many are hopeless at orthopaedic work; but that fact does not free from obligation and duty the considerable number who are temperamentally suited for it, and who, if they would face its implications, could do it very well. The technique is still in its experimental stages, but that is surely true of much psychiatric technique even in the most experienced hands. The general practitioner of the best type has always practised psychotherapy in one form or another, although he may not always have thought of it as such. At present many people are feeling strongly the need to maintain and even revive the highest and most useful concepts of general practice, and it is only right that psychotherapy at this level should be based on a sound and deliberately evolved technique. Contributions such as those of Balint, Jansen and Chapman are showing the way towards this.

## Current Comment.

### PRIMARY PULMONARY HYPERTENSION.

PRIMARY PULMONARY HYPERTENSION is probably by no means as rare as would appear from the number of case reports in the literature up to recent times, and an increased awareness of the disease together with the emergence of a reasonably characteristic clinical picture has led recently to its more frequent diagnosis. The literature is succinctly reviewed by D. W. Chapman, J. P. Abbott and J. Latson,<sup>3</sup> and they also report ten cases, carefully studied clinically as well as by more elaborate means.

Shortness of breath on exertion is the most striking and constant symptom, dyspnoea on lying down or at rest being uncommon. Cyanosis may occur; whilst it has been described as severe, it may often be absent. It is curious that Chapman and his colleagues do not discuss the reasons for the presence or absence of this sign. Attacks of fainting or weakness may occur on exertion, and some patients experience an angina-like substernal pain on exercise, which may be relieved by nitroglycerine. Some cough is frequent, but it may be relatively unproductive, and it may be episodic.

On examination there may be no abnormal signs in the lungs, but there is evidence of pulmonary hypertension in the over-activity of the right ventricle, impairment of percussion note to the right of the sternum and an accentuated (and split) pulmonary second sound. Soft pulmonary systolic murmurs were heard in several cases, and occasionally pulmonary diastolic or other murmurs. However, it is not uncommon to hear no murmurs; the important point is that these auscultatory findings are on the whole readily distinguished from those of most congenital or acquired cardiac lesions which might conceivably lead to secondary pulmonary hypertension.

Radiological and electrocardiographic studies confirm the presence of right ventricular hypertrophy, while the

former also shows two helpful negative points, the absence of enlargement of the left auricle and the absence of post-stenotic dilatation of the pulmonary artery.

Cardiac catheterization is not recommended by the authors because of the fatalities which have occurred when additional fluid has been put into the circulation. Resting pulmonary artery pressures are, of course, high; but, as distinct from the findings in many cases of secondary pulmonary hypertension, pulmonary capillary or "wedge" pressures appear to be normal. Cardiac output tends to be low and is presumably relatively fixed.

Other investigations are not necessarily helpful, and it is worth mentioning, in view of the concept of "Ayerza's disease", that polycythemia is not essential to the diagnosis. Pulmonary function *per se* does not seem to have been adequately evaluated in these patients, and the cause of the dyspnoea, for example, remains obscure; it is, however, known that ventilatory capacity may be somewhat reduced.

Differential diagnosis consists chiefly in the exclusion of secondary pulmonary hypertension, but as a rule the causes of this condition produce signs additional to those described above; occasionally emphysema occurring in a young person may cause difficulty. In advanced cases, the picture is that of congestive cardiac failure and pulmonary hypertension without apparent cause; the condition may occur at any age, although it is commonly described in young or at most middle-aged patients. When syncope or chest pain predominates, neurosis or coronary artery disease may be simulated superficially.

No treatment seems to exert a significant effect upon the course of the disease. Orally administered "Priscoline" has been suggested for its vasodilator effect, and so has sympathectomy. Chapman and his associates point out that anticoagulants may have a place in counteracting the occasional tendency to thrombotic episodes. The essential pathological abnormality is intimal thickening of the pulmonary arterioles; and in the absence of any knowledge of pathogenesis there seems to be no immediate prospect of interrupting or reversing the inexorable progress of these structural changes. Of prognosis the best that can be said is that insufficient cases have been described to permit of any accuracy. Most patients die within a few years of the onset of symptoms, some within a few months; in one of the present cases the patient is still alive and moderately well, without congestive cardiac failure, after twelve years.

### INFLUENZA IN NORTH AMERICA AND EUROPE.

ACCORDING to the latest reports sent to the World Health Organization, the influenza pandemic is decreasing throughout Asia, as well as in Egypt and in East and South Africa. However, it continues to spread to new countries or territories in West Africa (Sierra Leone and Ghana, for example) in addition to South and Central America. Its appearance has been reported in some areas of Brazil, which had not been affected before, as well as in El Salvador. In North America and Europe the spread of the disease is considerably slower. Even in the very few countries where the disease has affected up to 50% of the population, complications have remained exceptional and mortality is very low.

In the United States several strains of virus resembling A/Asia/57 have been isolated in Idaho and Washington State, as well as in the Great Lakes Naval Training Center. Some foci of an infection, probably influenza, have been reported in penal institutions in New York State and Alaska, as well as at a military base in Washington State; sporadic cases of a similar infection have been reported in Massachusetts, in New York State, in Pennsylvania and in Florida. Laboratory investigations are in progress.

In Europe, an increasing number of cases of an influenza-like infection are reported in West Berlin. In Belgium a number of cases of clinical influenza have occurred among young men and girls who have recently

<sup>1</sup> M. J. AUSTRALIA, 1955, 2: 613 (October 15).

<sup>2</sup> M. J. AUSTRALIA, 1957, 2: 462 (September 28).

<sup>3</sup> Circulation, 1957, 25: 35 (January).



come back from Rome, and among their contacts, at Overysse, Lierre and Wavre. Identification of the virus is in process. In Italy sporadic cases of influenza have been noted in three new provinces. In the Netherlands influenza is affecting 5% to 25% of the workers in a mining district in the province of Limburg. The Asian virus has been identified. Outbreaks of a similar infection have been reported in some factories near by, as well as in some children's homes in North Brabant and North Holland. A number of military units are still affected. Two deaths have been reported from staphylococcal pneumonia. In Portugal the virus isolated at Lisbon has been identified as belonging to the Asian type. In Rumania an Asian virus has been isolated. In Yugoslavia, between August 20 and 28, 48 cases of influenza were reported near Sarajevo, in a community of some thousand persons. Three strains of A/Asia/57 have been isolated.

Meantime, Australians with the memory of recent scares fresh in their minds will smile wryly at the comments of a group of public health officials from 25 countries who attended the Seventh Session of the Regional Committee for Europe of the World Health Organization in Copenhagen from September 10 to 13, 1957. The general view was that Asian influenza was a very mild disease and gave no cause for alarm. Despite this fact, a French delegate said that influenza had aroused widespread anxiety among the population in his country, and he underlined the important role the Press could play in allaying such needless fears. Delegates from Finland, Poland, Portugal and Italy spoke on similar lines, while a Netherlands delegate declared that in his country public fear was a graver matter than the disease itself. A delegate from Denmark reported that there were very few cases of influenza in his country and no trace of panic. It is reported further that vaccine against the current Asian influenza is now being prepared in Europe, in Italy, Poland, Portugal, Sweden, the United Kingdom and other countries, and will be given to health workers, air crews and other particularly exposed groups.

#### SKIN COLOUR.

THERE are still many unsolved problems in the study of skin colour. Before the migrations of the last four hundred years the peoples in the temperate northern climates of Europe and Asia were fair-skinned, whereas the inhabitants of the tropics were deeply pigmented. The relationship between the Amazonian Indians, the African Negroes and the Australian aborigines is not believed to be close, but all are darkly pigmented. The Scandinavian peoples on the other hand, taken as an example of the northern European, are fair-skinned. This has led to the theory that dark skins are an adaptive mechanism in the tropical races. It is probable that the heavily pigmented epidermis does in fact protect the structures of the underlying dermis against the ultra-violet light of the sun, although the statements of some physiologists are equivocal on this point. Even in hot moist shaded environments, such as the Amazon forests, the dark skin may still be an adaptive mechanism, since it enables the body to radiate heat more readily. But it may be that the fair skins are adaptive, as recently C. S. Coon, S. M. Garn and J. B. Birdsall<sup>1</sup> have suggested that depigmentation in the northern Europeans allows the best possible use to be made of the low ultra-violet radiation in those high latitudes.

E. A. Edwards and S. Q. Duntley<sup>2</sup> have shown that the chemical and physical basis of skin colour is the same in all races of man. Only four pigments are normally involved—haemoglobin, carotene, melanin and melanoid. Haemoglobin, of course, may be in the reduced or oxidized form. Melanoid is a derivative of melanin. Various modifications to the colour are brought about by the scattering of light, particularly in the *stratum germinativum*, variation in skin thickness and state of the skin capillary circulation. The distribution of the melanin, melanoid

and carotene is not uniform, according to E. A. Edwards,<sup>3</sup> and there are some sex differences. Edwards and Duntley used a Hardy reflectance spectrophotometer for the analysis of skin colour, but J. S. Wiener<sup>4</sup> has shown the suitability of a more portable machine.

The genetics of skin colour is still not well understood. It is a continuously varying character, so that a simple single gene system will not explain the inheritance. Some authors, such as R. R. Gates,<sup>5</sup> believe that three gene pairs are involved with unequal effects. G. A. Harrison<sup>6</sup> is inquiring into the genetics of skin colour at Liverpool, where there has been much immigration from Africa. To us in Australia, skin coloration is of great interest, because fair-skinned persons are much more likely to suffer from skin cancers and melanoma than the darker-skinned. The frequency of skin cancer in Australia is so great that more education should be attempted against excessive unnecessary exposure to the sun. Those with very fair skin should consider carefully whether living in northern New South Wales or in Queensland is in their best interest. The southern States would be more suitable. Much can be done to diminish occupational exposure by the use of wide-brimmed hats and the wearing of shirts. Very little education against excessive and unnecessary sunbathing has been attempted. Something can be achieved by the use of protective creams, but probably the best thing is to avoid the surf in the hours about midday when the sun is at its highest and the ultra-violet dosage is maximal.

#### POISONING BY COMMERCIAL PRODUCTS.

THROUGHOUT the world pharmacologists and medical men are becoming increasingly conscious of the poison problem. The widespread use of insecticides, polishes, paints, cleaning fluids and proprietary medicines has brought the public into much closer contact with the risk of poisoning. In many countries poisons centres have been set up to help with this problem; but the medical man is always called upon first when accidental poisoning or over-dosage is suspected. An attempt to provide comprehensive information on the problem has been made in a monumental volume by M. N. Gleason, R. E. Gosselin and H. C. Hodge.<sup>7</sup>

The authors of this book start with a classification of poisons in six grades of toxicity, from "practically non-toxic" to "super toxic"; this classification was badly needed, as often fear is expressed because a substance is thought to be more dangerous than it really is.

The next section deals with first aid and emergency treatment, and is followed by a valuable ingredients index, in which the components of compounded mixtures are classified according to the toxicity scale. The major part of the book, nearly 1000 pages, is devoted to a trade name index, in which all manner of preparations are listed with their main ingredients, and those most likely to cause toxic effects are marked with an asterisk. This would be of immense value in the United States, but its use will be much more restricted here, since the corresponding preparations with few exceptions pass under quite different names. A few familiar names will be found, it is true; but the composition may not be the same as that of the Australian product.

For the hospital this book is an essential, for even if we exclude the trade name index the remainder is of very real value. However, for the general practitioner we must await some Australian alternative. This may be a long time coming, since the task faced by Gleason, Gosselin and Hodge was certainly a monumental one, and for its completion they deserve considerable praise.

<sup>1</sup> In "Pigment Cell Growth", edited by M. Gordon (1953), Academic Press, New York.

<sup>2</sup> *Man*, 1952, 253:1.

<sup>3</sup> "Pedigrees of Negro Families" (1949), Blakiston Co., Philadelphia.

<sup>4</sup> *Eugenics Rev.*, 1957, 49:73.

<sup>5</sup> "Clinical Toxicology of Commercial Products: Acute Poisoning (Home and Farm)", by Marion N. Gleason, Robert E. Gosselin, M.D., Ph.D., and Harold C. Hodge, Ph.D., D.Sc.: 1957. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" x 62", pp. 1176. Price: £8 16s.

<sup>6</sup> "Races" (1950), Thomas, Illinois.

<sup>7</sup> *Am. J. Anatomy*, 1929, 65:1.

## Abstracts from Medical Literature.

### SURGERY.

#### Lumbar Sympathectomy for Peripheral Vascular Diseases.

L. PALUMBO, G. GRAY AND M. CLAMÁN (*Arch. Surg.*, April, 1957) report the effects of lumbar sympathectomy in the treatment of peripheral vascular diseases in two groups of male patients. In the first group, of 159 patients, 221 operations were performed from October, 1946, to December, 1951; in the second group, of 116 patients, 170 operations were performed from January, 1952, to December, 1955. These patients were suffering from a variety of peripheral vascular diseases, including the following: arteriosclerosis (some patients were diabetics); arterial embolism, aneurysm or thrombosis; Buerger's disease; frost-bite and causalgia; chronic thrombophlebitis; varicose or chronic leg ulcer. The patients ranged in age from twenty to eighty-five years; 30% were more than sixty years of age. The over-all favourable results in the two groups were almost equal, being considered fair to good in 88% of cases. These results were based upon improvement of circulation of the extremity due to release of vasospasm and the development of smaller collateral channels of the vascular bed not involved by the disease process. The authors consider, as a result of this study, that lumbar sympathectomy is a valuable method of therapy for many of the diseases enumerated, and that it carries a minimal risk and complication rate. They state that in properly selected cases it provides early improvement or relief of symptoms, more rapid healing of ulcers, diminution in peripheral oedema, subsidence of cellulitis and a dry extremity. The last-mentioned effect reduces the hazard of tissue maceration and subsequent bacterial and fungous infections. It may prevent or delay the need for a major amputation in some cases, with the result that many limbs were saved which by former standards would have been sacrificed. If amputation becomes necessary, it frequently can be performed at a lower level with safety, and rapid healing can be expected in the majority of cases. In these series 68% of amputations, major and minor, were performed below the knee. This method of management has resulted in earlier rehabilitation of many patients and has considerably reduced their period of hospitalization.

#### Diocetyl Sodium Sulphosuccinate After Ano-Rectal Operations.

R. TURELL (*Arch. Surg.*, April, 1957) uses diocetyl sodium sulphosuccinate instead of the conventional liquid paraffin in order to insure the smooth passage of the first stool after operations on the anus and rectum. He states that this substance, when used in a flushing saline enema in a 1% solution, is also very effective for softening and eliminating established faecal impactions in surgical or non-surgical cases; five cubic centimetres

of the solution are used in 60 to 90 cubic centimetres of water as a retention enema for several hours. This is followed by a saline flushing enema, or by one containing five cubic centimetres of the 1% solution for each 500 cubic centimetres of the enema fluid. This obviates the necessity for manual removal of impacted faeces under anaesthesia in most instances.

#### Aneurysm of the Aorta Treated by Resection.

M. DE BAKEY, D. COOLEY AND O. CREECH (*J.A.M.A.*, April 20, 1957) give the results of 313 operations on aneurysms of the aorta, 83 involving the thoracic aorta and 230 the abdominal aorta. They point out that aortic aneurysms, whether saciform, fusiform or dissecting, can now be corrected surgically by techniques which they describe. The diseased part is removed and function is restored either by repairing the remaining part or by using homografts or suitable plastic substitutes. They point out that the hazards of the operation are greatest for those aneurysms lying close to the origin of the aorta. For operations on the aorta proximal to the origin of the left subclavian artery they use a temporary shunt around the occluded segment. For operations on aneurysms distal to the left subclavian artery origin, but above the seventh thoracic vertebra, they find that hypothermia effectively prevents ischemic complications. As their technique has improved the operative mortality has been steadily reduced, and their patients have gained complete relief of symptoms in most instances. The authors state that there has been a significant increase in the life expectancy of patients with a disease which until recently was progressively disabling and ultimately fatal.

#### Therapy of Severely Burned Patients.

C. HITCHCOCK AND S. HOROWITZ (*Arch. Surg.*, April, 1957), from a wide experience of the treatment of severely burned patients, consider that as far as the treatment of the burned area itself is concerned the best method is a completely open method of management without recourse to initial débridement or cleansing of the burned areas. They state that such débridement increases the risk of shock in these severely burned patients. Approximately three weeks after injury, when the eschar begins to separate spontaneously from the deeper viable tissue, débridement and immediate grafting with both homografts and autografts have been highly successful in their hands. They present reports of many patients to demonstrate the excellent "take" and cleanliness of grafted areas seven and eight days after grafting when no dressings of any kind are used. They consider that whatever method is used locally, all efforts should be directed towards elimination of unnecessary delays in accomplishing the earliest and most complete grafting of the burned surfaces.

#### Rokitansky-Aschoff Sinuses as a Presumptive X-Ray Sign of Gall-Bladder Disease.

F. ALCOEN AND R. FRANK (*Arch. Surg.*, April, 1957) consider, from a study of

cases in the literature as well as their own case, that those gall-bladders which reveal diverticula on cholecystography, are usually accompanied by the signs or symptoms of chronic cholecystitis. They consider, therefore, that evidence of X-ray findings of diverticula of the gall-bladder should be considered strong presumptive evidence of gall-bladder disease.

#### Acute Perforated Diverticulitis of the Sigmoid Colon with Generalized Peritonitis.

H. BELDING (*Arch. Surg.*, April, 1957) states that acute free perforation of a diverticulum of the sigmoid with generalized peritonitis is a rare complication of diverticulitis because usually the nature of the inflammatory process in this disease is in essence a peridiverticulitis. This promotes dense adhesions to surrounding structures and other segments of sigmoid at an early phase, with resultant abscess and fistula formation to the peritoneal cavity. The author reports four cases of acute perforation of a sigmoid diverticulum with general peritonitis. Each patient was treated with a one-stage resection of the colon aided by the use of intravenously administered "Terramycin", all with success and with no post-operative morbidity or mortality.

#### Corticosteroid Therapy in Chronic Ulcerative Colitis.

S. FIERST, E. ROBINSON, A. LANGRAN, A. WERNER AND A. INGEGNO (*J.A.M.A.*, April 20, 1957), from experience of 114 patients receiving short-term treatment and of 23 treated continuously for from 10 to 23 months, state that the use of corticosteroids is only part of the treatment of ulcerative colitis. There is still no specific cure for this disease. They use corticotrophin (ACTH), cortisone, hydrocortisone, prednisone and prednisolone. Corticotrophin appeared to exert the most beneficial effects and to produce the least adverse effects. They considered that the most striking benefit from steroid therapy was in the preparation of the patient for surgery, especially if the patient was acutely ill and in a toxic state. They point out that the risk in steroid therapy lies in its masking effect on constitutional reaction, the obliteration of danger signs, and the direct toxic effect of the drugs. They found that whilst symptoms regressed more promptly with steroids than with other measures, there was no evidence that an increased number of remissions would result from their use.

#### Treatment of Cerebral Metastases from Breast Carcinoma.

S. KOFFMAN, J. GARVIN, D. NAGAMANT AND S. TAYLOR (*J.A.M.A.*, April 20, 1957) have studied the effects of prednisolone in the treatment of 22 patients with neurological symptoms resulting from cerebral tumours due to secondary metastases from carcinoma of the breast. They gave a basic dose of 50 milligrammes of prednisolone twice daily by mouth for three or four months. Remarkable temporary relief of neurological symptoms occurred in 14 patients. The authors considered that that effect was not explained by any regression of the tumours, but was most likely due to the



anti-inflammatory effect of prednisolone on the surrounding cerebral edema. These tumours surrounded by hemorrhage and not inflammation were not affected. The favourable effects lasted for several weeks to several months, and in one case it lasted over 15 months of therapy.

#### Effect of Fibrinolytic Agents and Corticosteroid Hormones on Peritoneal Adhesions.

E. LUTWAK, A. BEHAR AND N. SALTZ (*Arch. Surg.*, July, 1957) have made a comparative study of the effect of fibrinolytic agents and corticosteroids on talc-produced adhesions and granulomata in rats. This showed that cortisone and hydrocortisone given intraperitoneally were effective in preventing adhesion formation and in reducing the number of granulomata. The effect of hydrocortisone was superior to that of cortisone and also to that of streptokinase-streptodornase. Plasminogen and plasmin given intraperitoneally and cortisone given subcutaneously were without effect. The differences were demonstrable quantitatively and histologically.

#### Dimethicone Skin Protection in Surgical Patients.

B. N. CARTER AND R. SHERMAN (*Arch. Surg.*, July, 1957) found that an ointment containing dimethicone ("Sillicote") proved highly effective as a skin protectant in 90% of a group of surgical patients. The patients had lesions producing continuous or intermittent drainage by the alimentary or the genito-urinary tract. The ointment was found to be of value also as a skin protectant from the discharge of cutaneous ulcers, as well as from medicaments used in their treatment. The authors state that the best results were obtained when the ointment was used before skin changes had taken place.

#### Clinical Aspects of Soft-Tissue Tumours.

R. CLARK, R. MARTIN, E. WHITE AND J. OLD (*Arch. Surg.*, June, 1957) present a study of 122 cases of soft-tissue sarcomata. They outline the natural histories of these tumours, and point out that the capsules surrounding many of them are pseudocapsules only. Such a pseudocapsule in many instances has the aspects of a true capsule, such as may surround a benign tumour. However, it actually consists of "layering-out" of tumour cells in a series of flat planes parallel to the surface, plus a zone incorporating fibrous elements from the surrounding tissues. The authors point out that this pseudocapsule is often discontinuous, so that though these tumours can be apparently enucleated from the patient's body in a tissue plane between tumour and normal tissue, viable tumour almost always remains in the patient's body at some point around the plane of enucleation, since the cleavage planes wander from the inside to the outside of the pseudocapsule during the process of enucleation. As a consequence, the authors favour radical excision of these sarcomata through the normal host tissues surrounding the tumours. Of the 122 patients in the

series presented, 39 had been treated by this technique more than five years previously. Of that group, 16 survived five years or longer. The authors thus consider that these soft-tissue sarcomata can be cured locally in practically all instances if adequate initial surgery is well conceived and well executed. They think that the use of this method will prevent distant metastases in a higher number of cases.

#### Pancreatico-Duodenectomy for Chronic Relapsing Pancreatitis.

P. JORDAN AND M. GROSSMAN (*Arch. Surg.*, June, 1957) point out that subtotal and total pancreatico-duodenectomies are effective forms of treatment for chronic relapsing pancreatitis when there is marked dysfunction of the gland with architectural destruction. They investigated post-operative metabolic defects in six patients with this disease, three having been treated by total resection of the pancreas and three by subtotal resection of the pancreas. They investigated these patients by means of conventional and radioactive absorption studies. Pancreatin, in a dosage of six grammes a day, was found effectively to reduce the faecal fat and nitrogen losses that resulted from inadequate external secretions of the pancreas. The authors also used  $I^{131}$ -labelled triolein and radioiodinated ( $I^{131}$ ) human serum albumin (RISA), which were found to be useful tools for the study of fat and protein absorption. They found that analysis of the radioactivity of the stools was a more reliable index of absorption than was the radioactivity of the patient's blood. They found also that absorption of  $I^{131}$ -labelled oleic acid was significantly greater than the absorption of triolein. They do not at present understand the importance of this observation. Iron absorption studies with  $Fe^{59}$  gave normal findings in three patients who had undergone total pancreatectomy and figures higher than normal in one patient who had undergone subtotal pancreatico-duodenectomy. The authors consider, as a result of these studies, that if the clinical indications of severe architectural destruction of the pancreas are adhered to as the indications for operation, the post-operative metabolic defects should not be significantly greater than the pre-operative ones.

#### Partial Gastric Resection for Duodenal or Marginal Ulcer.

C. COGBILL, P. PIPIK AND Z. OWOLABI (*Am. J. Surg.*, June, 1957) report their impressions gained from a review of 200 partial gastrectomies performed for duodenal or marginal ulcer from July, 1956, to February, 1954, at the Cleveland Veterans Administration Hospital. They consider that in a case of duodenal ulcer it is important only to remove the ulcer itself when the patient is being operated on for acute hemorrhage; otherwise post-operative bleeding may occur from the ulcer. They state that as a result of partial gastrectomy the ulcer symptoms are relieved in most cases, and for that reason they consider that this is the best single extensively used operation for duodenal ulcer. However, they think that because of undesirable side effects, such

as weight loss, easy fatigability and weakness, search for a better procedure should be carried on.

#### Choledochal Cyst.

L. SERPAS AND C. LYTER (*Am. J. Surg.*, June, 1957) point out that a choledochal cyst is an idiopathic dilatation of the common bile duct, probably congenital in origin. They state that every case should be reported, because of the extreme rarity of the condition, and because the ultimate prognosis in each case bears a direct relationship to the surgeon's ability to recognize the pathological condition with which he is dealing. They mention a clinical triad of abdominal pain, abdominal tumour and jaundice as characteristic of this entity. The most helpful procedures are radiological examination and especially intravenous cholangiography. They point out that the treatment of choice is primary anastomosis between the cyst and the duodenum. Having investigated the pressure inside the cyst in the case which they reported, and having found the common bile duct pressure to be normal, they consider that these cysts are congenital in origin and not secondary to obstruction. They report an unusual case from their experience of intraduodenal choledochal cyst.

#### Crossed Renal Ectopia.

J. McDONALD AND D. MCCLELLAN (*Am. J. Surg.*, June, 1957), in a review of the literature regarding crossed renal ectopia, found that crossed renal ectopia with fusion was the most common form of this urinary tract anomaly. They have collected 378 cases from the literature and report two extra cases of their own. Crossed renal ectopia without fusion is much less common, and they have collected 11 additional cases since 1949, bringing the total number of reported cases to 40. Renal ectopia is most common in males, usually involves ectopia of the left kidney, and is most commonly diagnosed in patients between the ages of 21 and 30 years. The usual reason for clinical investigation in these cases is an associated pathological condition towards which treatment is directed. Pain is the most common symptom; it was present in 65% of the cases investigated. The authors point out that diagnosis is made by the usual combination of urological investigations.

#### Carotid Angiography in Tumour of the Neck.

N. WETZEL (*Arch. Surg.*, June, 1957) points out that carotid angiography has seldom been used as a diagnostic aid in the treatment of tumour of the neck. He points out also that only a few instances have been reported of its use in carotid body tumours. He states that percutaneous angiography is not difficult, is a safe procedure, and is of considerable value, inasmuch as one can demonstrate the relationship of the tumour mass and the carotid vessels, especially in the upper portion of the neck. He also points out that the angiographical appearance of a carotid body tumour is quite characteristic, as is that of aneurysms, especially when one takes antero-posterior and lateral views.

## The Wider View.

### CHINESE MEDICINE TODAY.

TOWARDS the end of 1956 an invitation was received from the President of the Chinese Medical Association, Dr. Fu Lien-chang, for a party of twenty Australian medical men to visit China. As there was no link between this association and any medical body in this country, the invitation was conveyed privately. After some deliberation and discussion, a private group was formed to accept this invitation and to visit China for one month. It was thought that even in this short period the group could learn something of the Chinese medical system, and could offer opinions and criticisms should they be desired. Furthermore, the members of the group were prepared to speak on clinical, educational and research aspects of medicine should our hosts wish it.

It was thought wise that this group should be chosen from those who not only were interested in these aspects of medicine, but had no strong political affiliations or interests. To this end, it was emphasized to the Chinese as well as to the Australian public that the group was a privately formed body not greatly concerned with politics. To this attitude the Chinese agreed.

The Chinese Medical Association was found to be a body formed chiefly of practitioners trained in western medicine, but some members were the old traditional practitioners of China. Members subscribed, attended meetings and obtained medical journals published by the association, although these were charged for, and were not included in the subscription. The organization differed from such bodies as the British Medical Association in important ways. Thus its President, Dr. Fu Lien-chang, was a vice-minister in the Department of Health, and at least one other vice-minister was among its eight vice-presidents. Of the remainder, Dr. Fang Shih-shou, a retired practitioner, travelled with us and proved a charming and considerate host. There were several others whom we met who impressed us greatly with their medical knowledge and skill. Although a fine tradition of medical practice has representation on this body, it is plain that much political supervision could be, or is exercised. The association has branches in all the large cities, and each holds its own meetings.

The Ministry of Health has as its minister Madame Li Teh-chuan. Madame Li, a highly educated and charming lady, and the widow of the young Christian General Feng Yu-hsiang, is not medically qualified. Her department controls not only medical education, but public health and the Chinese Red Cross. Under her are eight or nine vice-ministers. She states that she is "not a Communist", and corresponds with her friends in America. She is said to have had considerable experience in the Young Women's Christian Association at one time.

In a stay of but one month, our examination of medical affairs could extend only to those in certain of the larger cities. The conditions of country areas lying beyond their boundaries could not be observed except from the windows of the trains, or in adjacent villages and factories. Our knowledge of the conditions existing in the villages could be derived only from answers to our inquiries, and medical statistics from these areas were rarely available. We visited, in turn, Canton, Hangchow, Shanghai, Peking, Tientsin, Hankow and, again, Canton. Time did not allow us to visit Nanking, Manchuria or western China. Everywhere we met with the greatest courtesy and consideration, and were shown what we asked to see, besides that which was chosen for our inspection. We examined many medical schools, hospitals (general and special), research institutes and units, libraries, public health institutions and special departments related to the health of children and adults. As well we examined a penicillin factory, a medical supply agency and two factories. We engaged in many frank discussions with the numerous medical and scientifically trained men and women whom we met, gave a few set lectures which the Chinese chose, and joined in clinical and group discussions. As we separated into parties according to our interests, our coverage was considerable despite the short period of stay.

If any of our members thought beforehand that they would meet in China solely a primitive form of medicine at student standard, that thought was speedily dispelled. We came upon a group of senior men, the majority of whom were English speaking, whose quality was so high as to command our admiration immediately. Their intellect was of

a high order, their reading wide, and their medical knowledge little behind that elsewhere. Indeed, the advantage that we had over them in treatment and diagnosis lay largely in our greater technical facilities and a greater availability of drugs. Thus in the field of antibiotics, penicillin is the only one yet available to them in quantity, and even then a dose of a million units is regarded as extravagant. They therefore employ methods of local treatment which we have abandoned, and do not get the blood and cerebro-spinal fluid concentrations to which we are accustomed. Other antibiotics such as streptomycin and "Chloromycetin" are imported, but not in large quantity. They are commencing to make "Aureomycin". Relaxant drugs for anaesthesia are also still available only in small quantity, and the same applies to many other drugs which we now consider essential.

Concerning the medical schools in China, our own will no doubt receive special reports. There are, however, said to be 37 of them, of which 83 teach western medicine and four traditional Chinese medicine. The annual number graduating from the first type is said to be about 7000, and from the second something over 400. The total number of western trained medical practitioners in China is stated to be, even now, only about 70,000 in a total population of 600,000,000. The number needed per head of population to give an effective health service is still a debatable matter, but if we accept one per 1000 as an approximate proportion, China will require about 600,000 doctors for its needs. It is therefore plain that there is no possibility of giving an adequate service to the Chinese people for many years. Meanwhile over 80% of the population, the farmers, must be content with the same service as they have had over the ages, the traditional doctor with his drugs, acupuncture and moxabustion, and the village midwife. Of each of these groups there are stated to be about half a million. The peasants, therefore, are no worse off than they were before, and probably somewhat better, as some of these practitioners have been given training in simple public health procedures such as vaccination and injections, and medical practice. Midwives have been taught three procedures—cutting their nails, cleaning their hands, and the dressing of the cord.

It is no wonder that the Chinese Government in its pronouncements lays such emphasis on the importance of traditional medicine, for it is something that must serve the great majority of Chinese for many a long day. Their true assessment, as opposed to their published pronouncements, may perhaps be better shown by the small number of such practitioners that they themselves qualify (the number that are qualifying by the apprentice system was not made known to us) and by the small proportion of beds—from 3% to 4%—allotted to the traditional practitioner in Government-controlled hospitals. The peasant, however, is still likely to choose his old doctor in preference to others for many years to come. Of these there are plenty available.

We may next ask, what is the training of the Chinese medical practitioner? If it is the older age group to which we refer, the training has been in the western tradition, often in the old medical schools of China which had courses of training of a length comparable to our own. Furthermore, a tradition of post-graduate training was then followed, in which periods often of considerable length were passed at post-graduate centres and research institutes in Europe, America and Japan. This fine body of older men, with a few modern recruits who have returned to China for patriotic reasons, is the heart of Chinese medicine. Its weakness is that it is small in number compared with the vast population, and that many of its members are at an age which will not allow them many more useful years.

One of the great problems of Chinese medicine, therefore, is how they are to be replaced. Can the products of the present medical curriculum in China produce their equivalents in training and knowledge, able to teach as they can? Can the new practitioners direct research into medical problems? Even after the short examination of the present medical educational system to which we were confined, we had serious doubts.

After the assumption of office by the present Government in 1949, China found itself lamentably short of western trained medical practitioners. To its credit, the Government quickly appreciated the immense importance of disease prevention, and set about the formation of public health institutes, health and epidemiological centres, research institutes and vaccine factories which have had notable success, at least in the large cities and their environs.

To enable these schemes to operate, it seemed to the Government that it should train many doctors as quickly as possible. It therefore shortened its medical course to



four years, following, it is said, a Russian pattern. As this included one year's internship, and teaching in certain subjects such as political philosophy and the Russian language which we would regard as non-essential, it is plain that no student could have anything like the training which we consider adequate. Nevertheless, the graduates were useful doctors who at least had elementary training and could perform simple operations. As well, again in accordance with a Russian example, early specialization on public health and pediatrics was practised in courses of the same length as the medical course, but with variations to suit the particular subject. In public health the period of internship was only a few months, and in pediatrics it was confined to children's institutions.

This period of training was later judged too short. The course was therefore increased a further year, and so it remains at present, despite intentions to lengthen it to six years. The result is, by our standards, a course which, even if the teaching facilities of the two systems were comparable, would be at least two years too short. As a result, the primary subjects have been compressed greatly, and clinical work has been reduced.

If one analyses the position, one finds therefore a fine body of graduates trained in western medicine and sharpened by post-graduate studies abroad, who are attempting to train a great many young men and women for work as soon as possible, but who must know in their hearts that this material with its inadequate scientific basis cannot replace them satisfactorily; and many of them are aging men who work extremely hard. To us this appeared the great weakness of the Chinese medical system, the full effects of which may not be apparent for several years. Institutes for practice and research can be built rapidly, but it takes many years to build teachers and research workers.

Unless changes are soon made, it is unlikely that in a decade the medical services of China will approach world standard despite the fine material they have at hand. To find a solution to the problem will require a lengthening of the medical course by at least two more years, and a revision of the curriculum. If this cannot be done for all, it could perhaps be done for the more brilliant students, from whom the future teachers and research workers could be drawn. Furthermore, it would be well to consider the question of sending once more abroad the senior men, to sharpen their knowledge with new techniques and advances in medical science, and such younger men as are suitable, to find the best of what is happening in great medical centres elsewhere. To meet fresh minds begets fresh ideas, and brings to life teaching enthusiasm and research genius.

Of the medical schools of China, undoubtedly the finest is the Chinese Union Medical College. This lovely building with its magnificent medical library was originally built and endowed by the Rockefeller Foundation. Most of the original Chinese staff remain, and it has been made a post-graduate institute under the direction of Dr. Li Tsung-en. Indeed, it could well be the heart of post-graduate medical training in China, and a model for future hospitals. The fine new building of the Hankow Medical School is modelled on it, and is of a most satisfactory design, with an excellent medical staff. The old missionary hospitals and medical schools still function, although greatly expanded, many with recent additions. As well there are the recent, new medical schools, built in the European manner in three or four stories and strictly functional. The class rooms and laboratories are as a rule designed for small groups. Lifts are usually not provided. The larger lecture rooms often have provision for projection equipment, although this has not always been obtained. Indeed, such equipment is still not plentiful and not of high standard. Nevertheless, the skill of Chinese artists has often remedied this lack by beautifully painted wall scrolls and diagrams of both macroscopic and microscopic preparations. Chinese technical skill is also shown by certain of the museums, such as those of anatomy and pathology, some of which are very good, although they vary greatly in standard, and some are poor. Much undoubtedly depends upon the professor and upon local conditions of supply of artists and material. Teaching laboratories for physiology are usually of small size. In this field, as in certain others, there has been considerable political direction, and there is undue preoccupation with Pavlovian physiology. Unhappily good minds are often diverted to this project when their training has been directed elsewhere. As a result, it seemed to us that much valuable time was being wasted when it could have been well employed in other lines of research. Some of these projects, particularly when joined to electroencephalography and traditional acupuncture, seemed naive. Western medicine

is well aware of the genius of Pavlov; but it is disconcerting to find a young worker brought into neuro-physiological research who has never heard the name of Sherrington.

In the Academy of Medical Sciences in Peking, China has the nucleus of a fine research organization. This institution is well manned and contains many workers of high quality. Although certain of the projects of research are governmental, some at least are of considerable value. Among these public health is of particular significance, and the Academy has well-equipped and well-served branches in other Provinces dealing with such projects as the control of schistosomiasis and malaria. Examination of the drugs used by the traditional doctors is also being undertaken by trained pharmacologists. There are said to be 2000 herbal drugs in China, of which 1000 are in constant use. With such a number, who can say that something of considerable value may not be found? As yet, however, the studies are said to be in an early stage, and few results are available for examination.

Most of us were greatly surprised by the quality of the medical libraries which we examined. Many of their custodians remarked that they had little trouble in getting modern periodicals which they asked for. Modern journals in the basic medical sciences and in clinical medicine published in Europe, America and Japan in their most recent issues were found on their shelves. The Chinese Union Medical College takes 1100 current journals. This wide coverage of scientific and technical subjects was not found to obtain, in a visit of last year, in political and philosophical fields; there many journals ceased to be obtained in 1949.

Medical practice in China, although chiefly a Government concern, still has its private practitioners. In Shanghai there are 14 polyclinics, which are stated to be a new idea since the "Liberation". These do not contain beds, but have a number of departments including old Chinese medicine; and the one we visited had two separate dispensaries, one for western and one for the traditional drugs. It also contained numerous departments serving the main branches of clinical and diagnostic medicine in the western manner. Of the 14 clinics, however, no less than 11 were private. The one which we visited was governmental, and 60% of the patients came from Government factories. Fees were paid from the factories or cooperative farms, and the workers had medical insurance. It is interesting to observe that most of the hospitals are largely financed through fees obtained, and it is held that the patient appreciates the treatment better if it is paid for. The Government doctors in polyclinics work for 36 hours a week. For this the doctor, who is classed as a specialist, receives about £800 (Australian) a year. But he has the right of private practice in his spare time, for which the fee for the first visit seems to be from 4s. to 8s. With their savings, doctors may purchase property, and invest in Government loans at a fixed deposit for stated periods at a rate of interest considerably higher than we can obtain from our Government loans. Direct taxation seems hardly to exist.

We were told that some private practitioners make large incomes. There is, however, always the possibility that a capable man in private practice may suddenly be translated to a Government position at a much smaller return. Those to whom this had happened said that they made the change for patriotic reasons. As far as we were aware, practitioners who have recently graduated do not practise privately. They may be retained in an internship for three years or so then given staff appointments, or used for teaching or research. Others are given posts in various Government clinics. Some choice is said to be allowed in the matter.

A few factory and village clinics adjacent to the big towns were visited. One village clinic seen by me last year served some adjacent factories as well. Its equipment was scanty. A hydro-turbine factory near Shanghai had 3700 workers and staff with accommodation for 1200 families. They had a hospital of 10 beds with nine doctors (three, however, had only done a short three-year course). The doctors' salaries were about £400 (Australian) per year. The average worker's wage was about £5 to £6 (Australian) a month. However, his rent was only about 14s. (Australian) a month. As the total number of individuals served was 8000, the proportion of doctors to patients seemed adequate. Patients with serious illnesses were sent to the city hospitals, and this particular factory was associated with the Sun Yat-sen hospital in Shanghai.

Without doubt, the public health services of China have made a most important contribution to the health of the community. For this the present Government deserves great praise. Many of the great plagues—cholera, typhoid, typhus and small-pox—have been materially suppressed,

at least in the large cities and their environs. To what degree this has affected the far-off villages is uncertain; but it can only be a matter of time before the whole of China is served adequately. Even the simple training of midwives in cleanliness is said to have materially affected post-natal mortality. This, with the general lowering of the death rate, has produced in its turn another problem, an enormous rate of increase of population. To attempt to lessen this, birth control has been introduced recently, and abortion legalized. Sterilization of either partner is also encouraged if three living children have been born. Diagrams of birth-control techniques are on display, the chosen substance being hydrophenylacetate used as an ointment, a jelly or a suppository. Whether the children-loving Chinese will give heed to this direction, or will bother to use it, remains to be seen.

One problem which is under consideration is that of an additional language. The older practitioners trained in western medicine all have a second language, usually English, although other European languages or Japanese may at times take its place or be additional. This gives them wide access to world medical literature. Recently trained doctors, however, have not this advantage, as they have been taught Russian alone. As the coverage of this language is much less, and as English has become the *lingua franca* of the scientific world, it is said that students in both schools and universities are now allowed to choose between the two languages. This also permits much freer communication with neighbouring Asian and other countries where English is widely spoken.

One thing that was made clear to us during our visit was the extremely practical outlook of the Chinese people. Although we were asked to comment on and to criticize what we had examined, we were fully aware that many of the views that we expressed were in the minds of the senior members of the Chinese medical profession, and that they indeed knew far better than we did how the less satisfactory features of medical practice, training and research could be bettered. Often we felt that we were but expressing their own ideas and thoughts.

Our group found our medical confrères in China men and women whom we could not only admire for their intellectual qualities, but could consider as friends. Their unfailing courtesy, charm and enlivening sense of humour were our constant delight. We only wished that they might at some time visit us, so that we might in our turn show them not only our medical schools, universities and research institutes, but the friendliness of the Australian home.

LEONARD B. COX.

Melbourne.

## Congresses.

### THE NORTH QUEENSLAND MEDICAL CONFERENCE.

THE North Queensland Medical Conference was held at Cairns on June 25 to 30, 1956, under the patronage of Dr. H. FLECKER. There was a full scientific and social programme.

#### Office Bearers.

The office bearers were as follows: *President*, Dr. C. H. Knott; *Secretary*, Dr. W. R. Horsfall; *Treasurer*, Dr. C. C. Reid; *Committee*, Dr. C. H. Knott (chairman), Dr. B. G. Clarke (chairman, social subcommittee), Dr. J. Kennedy (chairman, publicity subcommittee), Dr. I. A. Lester (chairman, academic subcommittee).

#### Inaugural Meeting.

The inaugural meeting was held at the Hibernian Hall on the evening of Monday, June 25, and was opened by His Worship the Mayor of Cairns, Alderman W. J. Fulton. The inaugural address was delivered by Dr. O. S. HINSCHFIELD, Chancellor of the University of Queensland (see page 521).

#### Sprue.

Dr. R. A. DOUGLAS read a paper entitled "Sprue" (see page 525).

#### Injuries Produced by Marine Organisms in Tropical Australia.

Dr. H. FLECKER (Cairns) discussed injuries produced by marine organisms. He said that (a) the popular estimation

of the prevalence and seriousness of many marine injuries might be altogether erroneous—for example, the giant clam myth, or (b) such injuries might be rare and even unique—for instance, injuries by cone shell—or else (c) the accounts might be grossly exaggerated—for example, the familiar stone-fish horror. To illustrate the first example—stepping between the widely opened valves of the giant clam, *Tridacna gigas*—Dr. Flecker said that if the shellfish was stimulated, the two valves would very slowly approximate; but an authentic case of any foot ever being trapped and held by the shell was not to be found anywhere. On the other hand, occasionally one learned of the fixation of the foot between the points of a railway line, and even of victims being run down by trains when so pinned. Similarly many fishermen professed to be alarmed at the fearless giant estuarine cod, *Epinephelus summana* or *E. tauvina*, in Cairns mislabeled the Queensland groper, and weighing about 800 pounds. It was feared more than the shark; yet no record of any injury from that monster was as yet available.

Dr. Flecker went on to say that one of the most neglected fields of inquiry in the past had been that of stings by the jelly-fish or medusae, of which fatal cases occurred every couple of years or so; persons so stung might die within half an hour, before any possibility of effective aid could be brought to bear. In addition, almost every summer, the Irukandji sting regularly produced severe injuries to large numbers of bathers. In the past, both those injuries were attributed by practically everybody to the very well-known Physalia, better known by the absurd name of Portuguese man-o-war. On a recent occasion, immediately after a boy had been quickly stung to death at Cardwell, the police collected a number of medusae, including Cubomedusae, which they transported 100 miles by road to Cairns; there they were carefully preserved and forwarded by air to Dr. R. V. Southcott, of Adelaide. After critical study, he had described them as *Chironex fleckeri*, a new species, new genus and even new family; a description had since been published elsewhere. It was believed, although definite proof was still lacking, that these were the cause of the fatal stings. However, on the Cairns beaches there was as yet another sting, altogether different both from that of Physalia and from the fatal stings possibly caused by the newly described Chironex. It occurred only during December and January, and so was strictly seasonal, affecting only bathers off the sandy beaches and never those on the reef. Typically a sharp sting was felt, like that of a wasp, causing a hasty retreat to the beach. No weals were present, whatever part of the body was stung; at most there was a tiny pin prick, like that of a flea, and sometimes not even that. However, soon afterwards the victim was seized with severe shock, and collapsed, prostrate, with severe headache and, irrespective of the site of the sting, intense cramps in the muscles of the back, abdomen and limbs, and with retching and vomiting, demanding relief by hypodermic injection of morphine or "Trilene". Even that injection might not bring relief, and the severe agony might continue for hours. However, next day relief was very considerable, and usually in a day or two recovery was complete. Dozens or scores of victims might be afflicted on the same beach in the one day. The stinger had been called Irukandji, the name of the former aboriginal inhabitants of the Cairns region. However, the agent responsible for the discomfort had not yet been discovered. Some victims had not experienced any local sting at all, nor could any mark be found at the site of the sting. So far there had been no record of any such sting south of Innisfail, 50 miles south of Cairns, although, since the original description, similar cases had been reported from Fiji, from the Gulf of Carpentaria and from the Darwin area.

Dr. Flecker finally said that a number of other injuries ending fatally were either unique or else so rare as to be rather of the nature of freaks. Such was that of a bite from an octopus with a rapidly fatal ending in the Darwin area; no record of a similar fatality or near fatality could be found in the literature from any part of the world. A bite from a cone shell, *Conus geographus*, unique in Australia, had previously been reported as being fatal in the Pacific in at least four other instances.

#### Maternal Obstetrical Injuries in General Practice.

Dr. I. CHENOWETH (Mackay) read a paper entitled "Maternal Obstetrical Injuries in General Practice" (see page 526).

#### The Clinical Features of Leptospirosis.

Dr. J. A. CONNOLLY (Babinda) spoke on "The Clinical Features of Leptospirosis". After a brief historical intro-



duction, he described the epidemiology of the disease in North Queensland. He said that rats were the chief animal carriers. They excreted the causal leptospire in their urine, and in moist soil or surface pools with an alkaline reaction those organisms survived for long periods. Cane-cutters were infected through abrasions on their body surface. Most cases were seen shortly after heavy rain, the incubation period being four to nineteen days.

Dr. Connolly then contrasted the present-day cases with those of the pre-penicillin era. He said that, typically, a cane-cutter presented with a history of fever, headache, backache and shivering for one or two days. He had a temperature of 102° F. or more, his conjunctivæ were red, he had enlarged axillary and inguinal glands, and tenderness was present over his right hypochondrium. After treatment with penicillin in high dosage, he was afebrile and symptom-free in two or three days and fit to work in two weeks. Before the advent of penicillin, the patients presented in the same way. They slowly became afebrile, and their symptoms gradually abated over two or three weeks. They were debilitated for several more weeks. Many after four or five days developed intense jaundice and intractable vomiting, and a high proportion of those died in the second week after almost complete anuria.

Dr. Connolly then analysed the symptoms in detail. He said that fever, rigors, headache and aching in the back and limbs were the commonest symptoms, while vomiting, abdominal pain, sore eyes and occasionally respiratory symptoms were also seen. Fever, lymphadenopathy, conjunctival injection, liver tenderness and albuminuria were the chief signs. The temperature almost always exceeded 102° F., and often reached 105° or 106° F. Dr. Connolly said that in his own experience of 150 patients treated with penicillin, he had never seen a jaundiced patient. He maintained that if the patients were examined early and correctly treated with penicillin, they never became jaundiced.

Dr. Connolly then discussed the differential diagnosis, and said that the chief cause of error was scrub typhus. Headache, fever and lymphadenopathy were common to both. However, a rash was much commoner in scrub typhus, and an eschar, present in one-third of the cases, was diagnostic of scrub typhus. He said that the occupational history and the history of exposure were important, and that in many cases the condition was diagnosed as scrub typhus when the patients did not respond to penicillin. Dr. Connolly went on to describe the public health measures to reduce the incidence of leptospirosis—(i) efforts to reduce the rat population, and (ii) the burning of cane before cutting, to drive out rats and evaporate surface water. Cane-cutters were also encouraged to wear protective clothing. Dr. Connolly said that the use of penicillin in treatment was still questioned by many overseas workers. However, all the practitioners in North Queensland who saw many cases agreed that if penicillin was given early, its effect was certainly striking and often dramatic. Doherty's recent work had emphasized the value of penicillin, and the mortality should now be almost nil. Dr. Connolly stated that the most effective dosage of penicillin was 500,000 units every three hours.

#### Recent Work on Dengue Fever.

DR. L. C. ROWAN (Melbourne) read a paper entitled "Recent Work on Dengue Fever" (see page 530).

#### Post-Natal Asphyxia.

DR. R. PALMERSTON RUNDLE (Townsville) discussed post-natal asphyxia. He said that the newborn baby had to begin breathing adequately, or he died. If satisfactory breathing was not spontaneous, the *accoucheur* must take effective action. Token resuscitation was deplorable. The passing of a gum-elastic catheter, size 6 or 7 F, permitted liquor, vernix, meconium *etc.* to be sucked out when present, and oxygen to be insufflated at a pressure of 30 centimetres of water and at a rate of three litres per minute. Intubation with speed and certainty required direct laryngoscopy. That was easily learned on the infant cadaver. John Mann, of Toronto, had stated that the passage of the intratracheal catheter was a procedure which required more gentleness than skill. As time was an essential factor, the necessary outfit must be available in the labour ward, and it must be solely reserved for that purpose and in working order. The requirements were oxygen (and if no oxygen, a hand bellows), a gum-elastic catheter size 6 or 7 with tubing and adapters, and a baby's laryngoscope—or an attachment for an auriacope could be used. One or the other, with spare cells and bulbs, must always be in the midwifery bag or kept for resuscitation purposes only in the labour ward.

There was not time to send for the instrument; the nurse sent for it might not be able to identify it or to find it. The batteries might be flat, the bulb might have fused or might not be of the correct type. There should always be spare bulbs and spare batteries. Foregger, of New York, made a "miniature" laryngoscope, to which Miller, McIntosh, or Guedal blades, size (1), could be fitted.

Dr. Rundle then said that the procedure might not be considered simple, as not everyone could use a laryngoscope, or its passage was difficult in a baby. All doctors should be able to use a laryngoscope. It was not difficult to do so, and resident medical officers learned in one or two lessons. The instrument, held in the left hand, was inserted beside the tongue, the epiglottis was found and lifted up, and the tube was inserted. A gum-elastic catheter was easy to use. The baby lay on a flat surface with no sand-bag or pillow. The flaccid body of the apnoeic baby made things easier. It might be considered that to give oxygen intragastrically was easier; but the gastric mucosa was not designed for oxygen absorption and was much less in area than the pulmonary mucosa. An intragastric tube certainly permitted the emptying of the stomach. Dr. Rundle went on to say that the turbulence of the incoming gas or air would sufficiently oxygenate the blood, and insufflation could be continued for longer than artificial respiration and without trauma. It was more likely to be persisted in; Holmes and Payne mentioned success after two hours twenty minutes, and Lord *et alii* mentioned success after two hours. The advantages of intubation were the following: (i) it was simple; (ii) it was positive—one could see the tube enter the larynx; (iii) it was quick and so avoided suboxidation; (iv) it made possible clearing of the trachea; (v) it was labour-saving, so that one was likely to persist while there was a pulse. Dr. Rundle said, in conclusion, that the object of his paper was to save babies' lives, and to "debunk" the story of the difficulty of direct laryngoscopy.

#### Infantile Gastro-Enteritis: The Present Position.

DR. V. B. HENRY (Townsville) discussed infantile gastro-enteritis. He said that "infant vomiting and diarrhoea" was a more accurate description; in 40% of cases there was a parenteral source of the symptoms (notably *otitis media*). In 1947 there had been an epidemic of *Salmonella* gastro-enteritis in Brisbane; at the height of the epidemic 40% of the infants died. Notable post-mortem findings, apart from enteritis of variable degree, were mastoiditis, pneumonia and fatty degeneration of the liver. The mortality rate of infant vomiting and diarrhoea in non-epidemic times was 3% to 10%. Over the last twelve-month period at the Brisbane Hospital, the proportions of the bacteria obtained from stool cultures were: *Shigella*, 2.5; *Escherichia coli* (3 pathogenic strains) 1; *Salmonella* 1. *Salmonella* had an even incidence throughout the year; *Shigella* was more prevalent from November to May, and *Esch. coli* from June to October.

Dr. Henry then said that he would discuss treatment under the headings of resuscitation, maintenance of intravenous therapy, adequate oral feeds, and drug therapy. With regard to resuscitation, the aim should be rehydration within three hours. The administration of plasma (10 millilitres per pound) followed by half-normal saline with 2.5% glucose solution was satisfactory. The volume of the latter might be calculated roughly in the following way: weight in kilograms  $\times$  per centum loss  $\times$  10 millilitres. (For example, 250 millilitres would be required for a mildly dehydrated baby weighing 11 pounds.) However, hourly clinical assessment was essential at that stage. Oxygen was invaluable in severe cases, particularly if intestinal distension was embarrassing respiration. Next, discussing maintenance, Dr. Henry said that each twenty-four hours' requirement was calculated in advance. The appearance of the baby and his urinary output were noted. The theoretical requirement *plus* continuing losses due to the illness equalled the amount of fluid needed. The theoretical requirement was 1000 millilitres *plus* 100 millilitres for each year of age; under six months, the weight in kilograms  $\times$  140 millilitres. The losses due to the illness ranged from 300 to 1000 millilitres, depending on the severity of the diarrhoea. Potassium, protein, fat and vitamins needed consideration. Potassium was given after the baby had been dehydrated and had passed urine. It was available in ampoules containing 10 milliequivalents to 10 millilitres; three milliequivalents per kilogram per day were given, with a maximum of 15 milliequivalents to each 500 millilitre bottle of fluid. The theoretical basic need of protein was 1.6 grammes per pound per day. The amino acid methionine (choline precursor) helped to give protection against liver degeneration. Serum in an amount of 100 millilitres a day provided only 7.5 grammes of protein. "Parenamine" casein hydrolysate pro-

vided amino acid and could be given in larger amounts—e.g., 15 grammes a day. However, it often caused phlebitis. Albumin was available in a 25% solution in 100 millilitre bottles and in 25 millilitre ampoules, and was given in amounts of one gramme per pound per day. Fat in a finely divided form for intravenous administration would probably soon be available to make up the caloric requirement. Vitamins K, C and the B group were given intramuscularly every second day during the period of intravenous therapy. Dr. Henry said that intravenous therapy provided insufficient Calories; e.g., a 10 pound baby with mild diarrhoea receiving the regime of treatment he had outlined would receive 200 Calories, whereas the child should have more than 500 Calories. Adequate oral feeds should be given as soon as possible. In a mild case, the transition from glucose water to half-strength skimmed milk or half-strength normal feeds should be made within twenty-four hours. In more severe cases, "Bengerized" dried skim milk, 1:12, was tolerated on the second day, and 1:8 from the fourth day. Calories might be increased by 10 per pound per day. Satisfactory progress was shown by the passage of a normal stool with progressive upgrading of diet over ten days. With regard to drug therapy, Dr. Henry said that the non-specific vomiting and diarrhoea of infancy were best treated with sulphadiazine (Medical Research Council trial). The dose used was 125 milligrammes per pound per day. "Chloromycetin", 75 milligrammes per pound per day, was almost as good. "Aureomycin" was not favoured, though it was of value in cases not responding to sulphadiazine or "Chloromycetin". Other tetracyclines had not been tried in that series. A satisfactory regime directed to the infecting organism seemed to be: for *Shigella* infections, sulphadiazine or one of the "insoluble" sulphonamides; for *E. coli* infections, sulphadiazine or "Chloromycetin"; for *Salmonella* infections, "Chloromycetin".

Dr. Henry said, in conclusion, that only infants needing expert attention should be admitted to hospital. In hospital, the essentials were continuity of medical officer supervision, adequate nursing staff, and barrier nursing, including safe disposal of napkins to prevent cross-infection.

#### Incidence of Renal Colic.

Dr. C. H. KNOTT (Cairns) read a paper entitled "Incidence of Renal Colic" (see page 533).

#### Conservative Renal Surgery.

Dr. PAUL HOPKINS (Mackay) read a paper on conservative renal surgery, to stress the various methods available to conserve renal tissue. He discussed first renal infection, and pointed out the importance of removing obstruction; he also stressed the danger of rendering the patient sensitive or the organism resistant to antibiotics in the presence of unrelieved obstruction. Dr. Hopkins referred to the modern trend towards the conservative treatment of renal tuberculosis, and gave a brief description of partial nephrectomy. He discussed the growing use of that technique in the treatment of localized renal tuberculosis and in renal calculus.

With regard to conditions affecting the renal pelvis, Dr. Hopkins mentioned the value of partial nephrectomy in cases of calculus. He referred to the treatment of hydronephrosis, and drew attention to the importance of investigating the pelvi-ureteral junction for stricture, fold or other obstruction in all cases. He mentioned all the well-known plastic procedures, and gave a brief description of the Anderson Hynes operation. That operation was recommended for the more difficult, longer strictures. Dr. Hopkins suggested the performance of excision and anastomosis in the treatment of small strictures of the ureter which did not respond to dilatation. He described the Davis method of intubation for long or multiple strictures. He considered the use of ileal loops as having passed the experimental stage. The remark of Cordonnier, "The operation is a highly technical one, and one in which mechanical errors carry a high penalty", was stressed. A brief reference was made to other methods, using large or small bowel as reservoirs.

Turning to the lower part of the ureter, Dr. Hopkins discussed the treatment of stricture with and without calculus by excision or reimplantation. He referred in some detail to surgical injuries. Treatment was mentioned in relation to the following headings: ligation, crushing, section, removal of a length of ureter, late sloughing, stricture following radiation or radium therapy. Apart from the simpler methods of anastomosis and reimplantation into the bladder, other methods were described. In early diagnosis of ligation of the ureter, Campbell's method

was recommended—reopening of the wound, and the cystoscopic passage of a ureteric catheter to aid in recognizing the offending ligature and in removing it. The method of Boari was described, in which bladder flaps were used to bridge a gap between the lower end of the injured ureter and the bladder. Something of the history of that operation was given, with a brief review of its application.

Dr. Hopkins said, in conclusion, that the object of his paper was to survey the methods available to conserve renal tissue in conditions which, too often in the past, had been treated by nephrectomy. In proper hands, many of those kidneys could be saved.

#### Surgery in Peptic Ulcers.

Dr. K. DORNEY (Townsville) read a paper on the results of operation on peptic ulcers, with a comparison of the Billroth I and Billroth II procedures. His paper was based on the last 50 consecutive gastrectomies for peptic ulceration; 20 patients were public hospital and 30 were private patients. Forty of the patients were aged between thirty-nine and fifty-nine years; the extremes were twenty-one and eighty-four years. Dr. Dorney pointed out that pathological examination of sections after operation showed that four of the ulcers were malignant; the cases had been left in the series, because clinically, with regard to duration of history, pain, relief of pain, X-ray findings and operation, they presented as cases of gastric ulcer. Dr. Dorney said that operation had been performed only for one or more of three reasons—severe haemorrhage (12 cases), stenosis (9 cases), or pain that was so persistent that life was not worth living (29 cases). Under those conditions, subtotal gastrectomy was the procedure of choice in the treatment of peptic ulcer. All patients with severe haemorrhage should be subjected to immediate gastrectomy if their pulse rate could not be maintained under 90 per minute after three pints of blood had been transfused at a rapid rate. However, it had to be noted that in one case which terminated fatally after operation, haemorrhage had reduced the haemoglobin value to 5.8 grammes per centum, but the pulse rate had never risen above 84 per minute. Dr. Dorney went on to say that gastro-enterostomy had a place in the treatment of duodenal stenosis in those cases in which gastrectomy would be a hazardous procedure on account of the patient's advanced age or debility. In cases in which severe pain had lasted over years, operation in his opinion offered the only permanent relief, with restitution of the patient to a normal life. Operation was of less risk to the patient than retention of his ulcer. For gastric ulcers showing no signs of healing after eight weeks of intensive medical treatment, operation should be performed. Of the 26 gastric ulcers in the series, four had shown carcinomatous changes; in those four cases the duration of the dyspeptic history was 10, six, three and three years respectively. Dr. Dorney said, in conclusion, that the performance of subtotal gastrectomy for ulcer was a less hazardous procedure than leaving the ulcer alone.

#### Surgical Complications in the Tropics.

Dr. I. A. LESTER (Cairns) read a paper entitled "Surgical Complications in the Tropics" (see page 534).

#### Tropical Cutaneous Ulcers.

Dr. CLYDE PETHERBRIDGE (Townsville) read a paper entitled "Tropical Cutaneous Ulcers". He defined a tropical cutaneous ulcer as a cutaneous ulcer which occurred mainly or only in the tropics or subtropics.

Dr. Petherbridge brought out the following points: (i) Tropical cutaneous ulcers endogenous to North Queensland were *granuloma inguinale*, yaws, Barcoo rot, coral ulcer and hookworm ulcer. (ii) Tropical ulcer—*ulcus phagedenicum tropicum*—did not appear to occur in Australia, although it would seem that workers in the North Queensland jungle laboured under conditions similar to those existing elsewhere in the tropics, where the incidence of this ulcer in outdoor workers was high. The only factor which was not common seemed to be the higher level of nutrition of the North Queensland jungle worker. (iii) Yaws might be encountered in aborigines in North Queensland. With regard to the diagnosis of yaws, the most important thing was to remember that the disease occurred. Gangosa, which was usually considered tertiary yaws, did not seem to have been observed. (iv) *Granuloma inguinale* was not uncommonly found in aborigines in North Queensland. Although superficial ulceration was the most common manifestation, a deep ulcerative form occurred. That form was most common in females, and might penetrate into the recto-vaginal septum and even reach the internal genital organs. Papil-



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lomatous, non-ulcerative and mixed forms also occurred. As a result of scarring, lymph vessels might be blocked, the result being an elephantiasis-like swelling of the genitalia. Diagnosis depended on the demonstration of Donovan bodies in smears and biopsy. Repeated scrapings or curettings from the edges of the lesion might need to be made, since the organisms might be few in number and difficult to find, especially in slowly spreading ulcers or healing ulcers. (v) Coral ulcer was met with along the North Queensland coast. The ulcer was due to the entrance of tiny coral darts into a laceration or abrasion resulting from living coral, or into otherwise uninjured skin. The darts produced a toxin, and in addition caused a foreign-body reaction. The injured area soon became swollen and painful, and cellulitis developed. Painful, deep ulceration occurred, together with lymphangitis and lymphadenitis. The ulcer was characterized by chronicity and by exacerbations and remissions. Prophylactic measures consisted in the wearing of adequately protected footwear, and care in handling live coral. The ulcer was treated by curettage, and by control of secondary infection. (vi) Barcoo rot occurred in north-west Queensland. It appeared to be the Australian form of a geographically widespread disease which occurred elsewhere in the world under various synonyms—e.g., desert sore, veldt sore. It was questionable whether there was any difference between Barcoo rot and ecthyma. Bacteriological examinations revealed only the common pyogenic organisms. It was not uncommon to find impetigo co-existent. Lesions rapidly cleared with mild antiseptic treatment if the patient went to the coast. It appeared to be reasonably well established that malnutrition was the factor decreasing the resistance of the skin to infection. The incidence of Barcoo rot was decreasing in north-west Queensland, probably owing to an overall improvement in diet. (vii) Hookworm ulcers might be seen in fully developed cases of hookworm. They occurred over the shins, as oval ulcers with rounded edges and a purulent, necrotic base.

#### Tuberculosis: The Present Position.

DR. E. W. ABRAHAMS (Brisbane) read a paper entitled "The Present Position of Tuberculosis" (see page 537).

#### The Blood Sedimentation Rate of Various Races in North Queensland.

DR. W. R. HORSFALL (Cairns) read a paper entitled "The Blood Sedimentation Rate of Various Races in North Queensland" (see page 540).

#### Bronchial Asthma.

DR. ERNEST SILBERSTERN (Rockhampton) read a paper on bronchial asthma. He said that bronchial asthma was characterized by well-defined attacks of dyspnoea due to: (a) spasms of the unstriated muscle fibres of the bronchial tree, (b) conspicuously increased secretion of the epithelial cells of the bronchial tree. The attacks were separated by intervals free of signs and symptoms. If those intervals were not free of signs and symptoms, the condition had to be investigated in that direction too. Bronchial asthma, as a rule, was not due to a single cause, such as allergy, psychological conditions or somatic conditions of the respiratory system or other organs or systems of organs, but to a coordinated action of at least two of those factors together. Dr. Silberstern said that there was no bronchial asthma without an underlying abnormal disposition of the nervous system. There was no bronchial asthma without some stigmatization of the tracheo-bronchial structures under the control of the autonomic nervous system. Sometimes a third factor anywhere in the body might exert its influence in the same direction as well (e.g., mediastinal conditions, intestinal worms, myofibromata of the uterus etc.). He stressed that investigations had to be extended in every individual case to all those factors, and had to distinguish between (i) the underlying condition which kept the organism ready to react to some stimulus with an attack of bronchial asthma, and (ii) the factor which released the individual attack—e.g., psychological upsets, exposure to allergens etc.

Dr. Silberstern went on to say that no lasting cure could be achieved unless all those conditions and factors participating in the individual case were fully recognized and appropriately and successfully treated. He explained the role of the mind, of the nervous system, particularly of the autonomic nervous system, of the connexion between the autonomic nervous system and the hypophysis and other hormonal glands, of the various organs concerned, and of the respiratory organs and other organs. He demonstrated

appropriate diagrams and slides and discussed four characteristic case histories. He explained the importance of the clinical history, the general history and the history of the psychological and somatic background, particularly in connexion with the first and with later attacks of bronchial asthma, for the understanding of the mechanism of the asthma in each individual case. He referred to the clinical signs and symptoms of bronchial asthma, the importance of a full clinical examination supported by appropriate pathological and radiological investigations, the tests for allergy etc., and discussed the complications, the differential diagnosis and the principles and practice of the treatment (Table I).

TABLE I.

Localization.	Mechanism.	Treatment.
<i>Cortex cerebri.</i>	Mind.	Psychotherapy, sedatives.
Infundibulum and hypophysis.	---	---
<i>Medulla oblongata.</i>	---	Sedatives, lobelia.
Sympathetic and parasympathetic ganglions and fibres.	---	Denervation of the lung.
Other organs.	So-called reflex.	Treatment of the appropriate organ.
End-organs of the autonomic nervous system.	---	Adrenaline, epinephrin, ephedrine, cortisone, ACTH, lobelia.
Organs of response: (i) unstriated bronchial muscle cell; (ii) bronchial epithelium cell.	Allergic response, intrinsic or extrinsic.	Desensitization, anti-histamine drugs.
Combined action with mutual influence of centres on each other.	---	Combined.

#### Prothrombin Depressants and Sodium Fluoracetate in Rat Control.

DR. W. R. HORSFALL (Cairns) read a paper entitled "Prothrombin Depressants and Sodium Fluoracetate in Rat Control" (see page 542).

#### Fracture of the Shaft of the Femur.

DR. URBAN LEY (Townsville) presented a paper on the results obtained in 100 cases of fractures of the shaft of the femur. He prefaced his review with a plea for a standardized form of emergency treatment and transportation of those patients who often had to be brought hundreds of miles for specialist treatment. Fourteen of the series were children and 86 adults. The children had all been treated in a well-fitting straight Thomas splint by fixed traction, the traction being maintained by a Spanish windlass. At the end of five weeks a plaster spica was applied, and the child was discharged from hospital, walking with the aid of crutches. Of the adults, 24 had been treated by intramedullary nail fixation, five by plating, and the remaining 57 by skeletal traction through the upper end of the tibia.

Describing the results obtained, Dr. Ley said that in none of the children was there any residual limitation of knee flexion, and any original shortening of the limb had disappeared within two years. Of the adults treated by intramedullary nail fixation, 14 retained full knee function, while 10 had some loss of knee flexion. The average period way from work was six months. All the patients treated by plating finished up with some limitation of knee function. Of the patients treated by skeletal traction, 46 did not regain full flexion of the knee, and the average period away from work was ten months.

Dr. Ley said that the results in children could be summarized in the following way. (i) A good result with conservative treatment could be confidently expected. (ii) Internal fixation was never necessary. (iii) Full function of the limb should be regained within six months. (iv) There should be no residual limitation of knee flexion. The results obtained in the treatment of adults could be summarized in the following manner. (i) A large proportion would be left with limitation of knee flexion, which would make it impossible for them to resume their previous occupations. (ii) Most fractures of the upper two-thirds of the femur should be treated surgically and stabilized by intramedullary nail fixation. (iii) Fractures of the lower third should be treated by skeletal traction. (iv) Non-union was a rare complication of fractures of the femoral shaft. (v) Intramedullary nailing was the method of choice for

internal fixation, as it gave a much higher percentage of fully functioning knees than any other method. (vi) Treatment by intramedullary nailing was of considerable economic importance to the hospital authorities; patients had a much shorter stay in hospital, and had no need to be fitted with an expensive caliper or to be put in a plaster of Paris spica before they could be discharged.

DR. GAVIN DOUGLAS (Townsville) read a paper entitled "The Painful Shoulder". He dealt with the subject solely from the diagnostic aspect, considering in detail the pain caused by structures in immediate relation to the shoulder joint. He said that that pain must be distinguished from pain caused by musculo-ligamentous disorders of the neck and by conditions causing radiating nerve root or neurovascular pain in the arm. The chief causes of true shoulder pain were lesions of the rotator cuff with the characteristic painful arc of abduction. They could be further distinguished, by the onset, age and degree of local tenderness, into tears, tendinitis and calcification.

Dr. Douglas next discussed adhesive capsulitis of the shoulder, which he said might arise *de novo* or might follow trauma. One interesting cause was the formation of adhesions after abdominal operations, particularly gynecological operations. Dr. Douglas attributed that to the use of shoulder bars preventing rotation of the scapula resulting in hyperabduction of the arm for long periods when intravenous anaesthesia was employed. Acromioclavicular arthritis was a fairly common cause of shoulder pain. It could be distinguished by the fact that pain did not occur until after 90° of abduction had been reached, as there was no joint movement until then. Local tenderness of the joint was another distinguishing feature. Fractures of the upper part of the humerus and dislocation were mentioned as conditions giving little trouble in diagnosis. Glenohumeral arthritis, neoplasms of the upper part of the humerus and referred pain were considered briefly as uncommon causes of shoulder pain.

#### Blindness.

DR. J. J. KENNEDY (Cairns) discussed the incidence of blindness in a white population, and mentioned the present trends in blindness, with particular reference to the report by Professor Sorsby on blindness in England and Wales. He also made some suggestions relating to the prevention of blindness. He said that registration of blindness had been in force in England since 1922, and there had in the intervening years been a very significant variation in the number of blind persons and in the chief causes of blindness. First of all, the total number of blind persons had risen very considerably in the period from 1922 to 1953. The figure in 1922 was roughly 25,000, in 1940 it had reached 75,000, and by 1953 it was just over 90,000. Despite that very marked increase, the incidence of blindness in children of school age had decreased from 37 per 100,000 to 22 per 100,000 by 1942, and had remained almost constant since. There had recently been a great increase in blindness of infants, due mainly to the appearance of retrolental fibroplasia as a significant cause.

Dr. Kennedy went on to say that the causes of blindness had altered considerably in the last thirty years. The general trend was for blindness from infection to decrease, while that from congenital and hereditary causes and from cataract, glaucoma and fundus lesions in the aged showed a considerable increase. It was difficult to see how, in the present state of medical knowledge, the incidence of blindness could be much reduced in childhood. The marked reduction of *ophthalmia neonatorum* dated from the introduction of chemotherapy, particularly the sulphonamides, and the congenital and hereditary causes were so far not sufficiently understood. Retrolental fibroplasia, which had now been proved to be due to sudden changes in the oxygen tension in the blood, should disappear as the dangers of excessive oxygen therapy in premature infants were understood. At the other end of the scale, glaucoma, cataract and vascular lesions of the macula awaited attack. It was of interest to learn that of 10,000 adult industrial workers over the age of forty years investigated in Philadelphia, no less than 280 were found to have undiagnosed ocular hypertension. On that basis, it had been suggested that 1,000,000 adult Americans had glaucoma and did not know it, and in Australia, a comparable figure would be 60,000 or 70,000. Even in a small centre of population like Cairns, there would be 250 to 300 people with undiagnosed glaucoma. Senile macular degeneration, too, which accounted for such a high proportion of blindness in the aged, was a problem about which too little was known.

Turning to monocular blindness, Dr. Kennedy said that in view of the considerable morbidity involved in that condition, every effort should be made to improve the treatment of strabismus and the incidence of blindness in one eye from that cause. It was still too common for parents to be told that it was not necessary to do anything about a child's squint until the age of seven years. It was estimated that the chance of successful treatment at that age was less than half what it would be if treatment was commenced at the age of two years. It could not be sufficiently emphasized that the right age to commence treatment for a squint was as soon as the disease was noticed after the age of twelve months. Provided that there was no macular lesion, the treatment of squint by corrective glasses, occlusion, operation and orthoptics was successful in a high proportion of cases.

Dr. Kennedy, in conclusion, said that new steps were continually being taken in the prevention and cure of blindness. New drugs, such as "Diamox" and dicoumarol, and new operative techniques like Ridley's acrylic lens replacement after cataract extractions and Mayer-Schulcherath's coagulation therapy for detachments, gave promise of a steady advance in the reduction of blindness.

#### The Psychology of Alcoholism.

DR. W. RICHARDS (Townsville) read a paper entitled "The Psychology of Alcoholism" (see page 544).

### Out of the Past.

*In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.*

#### THE ALFRED HOSPITAL.

[From the *Australasian Medical Gazette*, March, 1887.]

THE committee of management of the Alfred Hospital, Melbourne, met on February 11 when nine applications were received for the office of resident medical officer rendered vacant by the resignation of Dr. Backhouse. By a recent resolution of the committee it was decided that in future, instead of having a senior and junior resident medical officer, there should be two officers of equal standing, one to take charge of the medical and another to superintend the surgical wards. Four candidates applied for the position of physician, and, a ballot being taken, it was found that Dr. A. S. Joske, late junior resident medical officer, had been elected by a majority of 14 to 2. For the office of surgeon there was a very close poll resulting in a tie between Dr. Kilpatrick and Dr. John Sutherland. The president gave his casting vote in favour of the latter, who was therefore declared duly elected.

### Correspondence.

#### AN ASTONISHING PHENOMENON.

SIR: What astonished me about this whole business is not that the lay Press chose to publicize the dangers of rauwolfia, but that it should have been necessary for you to publicize them again, after two years of warnings on the subject. In spite of your optimism that doctors' normal training would have already fitted them to deal with this matter, the fact is that some of these same doctors are still prescribing this drug for neurosis and mild hypertension (the latter often existing only in the said doctors' imagination), not infrequently converting the condition into a major psychosis.

As this drug has many superiors in the treatment of both neurosis and hypertension, I consider that its use should be banned (except perhaps in mental hospitals, where its use may not do great harm).

Similar considerations apply to the "Golden Death". The appearance of this penicillin-resistant *Staphylococcus aureus* pneumonia may not be unconnected with the type of treat-



ment used by many Brisbane general practitioners during the recent "Asian 'flu' epidemic. Of my friends and patients who reported consulting general practitioners about "the 'flu'", about two-thirds said they received "penicillin", about one-quarter said they received "sulpha drugs", and the remainder said they received aspirin in one form or another.

Perhaps, sir, your optimism about our training is unjustified.

Perhaps, sir, we do not all read every one of your words of wisdom.

Perhaps, sir, those two-inch headlines will serve a good purpose inside the profession!

Yours, etc.,

V. L. MATCHETT.

Ballow Chambers,  
Wickham Terrace,  
Brisbane.  
September 12, 1957.

#### "OUT OF THE PAST": A MISTAKE IN Dr. POULTON'S NAME.

SIR: May I call your attention to the misspelling of Dr. Poulton's name in the "Out of the Past" columns in the issue of September 14?

Yours, etc.,

H. S. NEWLAND.

12 Burlington Street,  
Walkerville,  
South Australia.  
September 16, 1957.

[We regret this error, which was made in transcription.—EDITOR.]

#### HÆMOLYSIS FOLLOWING THE INGESTION OF UNCOOKED BROAD BEANS.

SIR: We have recently studied a patient whose clinical course suggested a diagnosis of favism. This seven-year-old Greek boy developed fever, vomiting and abdominal pain several hours after the consumption of a large number of fresh broad beans. Two days later he became pale and jaundiced, and laboratory investigation indicated that he was suffering from a severe hemolytic anemia. His condition rapidly improved following blood transfusion, and he has been in good health for nine months since this illness.

Inquiry has established the fact that the common broad bean grown in Australia is *Vicia faba*, the same bean as that grown and eaten on the Mediterranean littoral.

It seems probable that further cases of favism will occur in this country, in view of the increasing number of children of Mediterranean racial extraction, and the propensity of members of these races for eating fresh or partially cooked broad beans.

We would be most interested to hear of any patient with an episode of excessive hæmolytic soon after the ingestion of such beans.

Yours, etc.,

J. D. HARLEY,  
LORIMER DODS.

Royal Alexandra Hospital for Children,  
Camperdown,  
New South Wales.  
September 10, 1957.

#### X-RAY THERAPY IN POST-TRAUMATIC ARTHRITIS, PARAARTHRTIS AND FASCITIS.

SIR: We would agree that many cases will respond to physical measures, hydrocortisone, or local anæsthetic injections, and it would seem unnecessary to expose such patients to the possible hazards of X-ray therapy.

We do, however, find that there is a definite proportion of such cases that will not respond to the more simple methods, but which, nevertheless, benefit considerably from X-ray therapy. We feel that in these cases the beneficial effects justify the acceptance of the risk of X-ray therapy, when this is in the hands of a therapist who is cognizant of the risks involved, and takes all possible steps to

minimize these risks of radiation. In this case it would seem unreasonable to deny such patients the benefit of X-ray therapy.

In the present state of acute awareness of the risks of radiation therapy, it is well to remember that the risks of X-ray therapy are by no means the only ones. We not only have the risks of diagnostic radiology, cosmic radiation and nuclear explosions, but the completely indefensible risks involved in the indiscriminate use of X-ray screening in the fitting of footwear.

Yours, etc.,

FRANK MAY,  
LEIGH T. WEDLICK.

81 Collins Street,  
Melbourne,  
September 13, 1957.

#### TROPICAL ULCER AMONGST THE NATIVES OF NEW GUINEA.

SIR: The article on this subject by Dr. Jekabs Kariks (M. J. AUSTRALIA, September 7, 1957) recalled my own efforts to find a solution to the problem of treating this troublesome condition amongst the Africans of Tanganyika. His account of the aetiology, pathology and clinical course of the ulcers agrees closely with findings both in low-lying forest land and upland plateaux of sub-equatorial East Africa, so that treatments evolved in Tanganyika might well be applicable to cases occurring in New Guinea. Dr. Kariks claims that his treatment has reduced the healing time of ulcers by over 90%, and that the healing time is one to four weeks, depending on the size of the ulcer. Presumably the percentage reduction in healing time is relative to the natural healing time. My own survey of the literature in 1951 showed that many writers claimed healing times of two to four weeks. Unfortunately many published series are comparatively small, and lack details of size of ulcer and presence of complications such as bone and tendon involvement, so that comparisons cannot be drawn. Dr. Kariks gives no figures to illustrate the effects of his treatment, which he admits is painful, at least in the early stages, and requires dressings to be done by the doctor himself, if complications are to be avoided.

My own experience (*Brit. M. J.*, 1951, 2: 1544) was obtained in the in-patient department of the Hospitals of the Overseas Food Corporation in Tanganyika, where annual out-patient attendances of new cases of tropical ulcer were about 2000, and admissions of new cases of ulcer something over 250. Treatment of 368 in-patients by seven treatment schedules was reviewed and results analysed. Of these, 314 underwent skin-grafting operations. I found that the best results were obtained in a group of 70 patients treated by (a) parenteral penicillin with (b) ulcer toilet, local penicillin, and occlusive plaster of Paris cast, followed after seven days by (c) Thiersch graft and occlusive plaster of Paris cast for a further seven days, and (d) discharge in "Viscopaste" bandage. Under this regime, 80% of 69 cases were 90% healed or better seven days after skin grafting. The average stay in hospital of the 69 cases was 18 days. The method is simple, painless, relatively cheap, and requires the presence of the doctor on only three occasions, namely, for primary ulcer toilet, skin graft, and discharge examination.

Yours, etc.,

Burnie General Hospital, H. D. O'BRIEN, F.R.C.S.I.  
Burnie,  
Tasmania.  
September 12, 1957.

#### THE EARLY TREATMENT OF SQUINT.

SIR: After reading Dr. T. Keith Lyle's letter in the Journal of September 14, 1957, I can only regretfully conclude that he classifies me with those ophthalmic surgeons "who have not sufficiently acquainted themselves with the theory and practice" of orthoptics. He must surely think that I am completely devoid of common sense. I have been the proud possessor of a synoptophore for nearly twenty-five years, and have preferred to base my opinion on its value from my own experience in its use. I have always regarded occlusion as a useful adjunct to treatment and try to obtain useful vision in each eye of the squinter as far as that has been possible. Dr. Lyle's remarks about the ready cooperation of the child when occlusion is being tried reminds me of the stern parent's admonition as his erring son bends over:

"This is going to hurt me, my boy, far more than it is going to hurt you!" With him I hope that success will be achieved in Clippens's method with many amblyopic eyes. Opinions expressed in the literature overseas are cautious as to the value of the method.

In his last article (1957), Dr. Lyle puts all his cards on the table, and whilst he attempts to demonstrate the success of orthoptic treatment, he qualifies this by stating that it was probable that success would have been obtained without it. On page 132, when discussing the results obtained in fully accommodative strabismus, he says: "If orthoptic treatment had been omitted, there is no reason to suppose that the ultimate result would have been less successful provided adequate attention was given to the prescription and wearing of glasses." Again, on page 135, with non-paralytic non-accommodative strabismus: "Furthermore, it is known that, in this type of case, binocular single vision may develop spontaneously after a few months or years." What interpretation is to be placed on these words coming from such an eminent authority?

The main value of orthoptics is that it demonstrates that the doctor is "taking an interest" in the child, a very valuable point in his favour when the "turn" in little Tommy's eyes is being discussed over the tea-cups—and no affliction in childhood is more thoroughly discussed at this time.

Yours, etc.,

KEVIN O'DAY.

33 Collins Street,  
Melbourne,  
September 21, 1957.

#### Reference.

LYLE, T. K. and FOLNEY, J. (1957), "Prognosis in Cases of Strabismus with Special Reference to Orthoptic Treatment", *Brit. J. Ophthalm.*, 41:129 (March).

#### MEDICINE AND THE LAY PRESS.

SIR: May I suggest to your members that, should they on any occasion give an interview to a representative of the Press, they should insist on reading the article before publication?

Yours, etc.,

SYDNEY CRAWCOUR, M.B. et Ch.B.

Medical Department,  
Electronic Industries Limited,  
126 Grant Street,  
South Melbourne.  
September 13, 1957.

#### The College of General Practitioners.

##### QUEENSLAND FACULTY.

##### Annual Meeting: Provost's Address.

THE annual meeting of the Queensland Faculty of the College of General Practitioners was held on September 12, 1957, at the United Services Club, Brisbane.

DR. P. W. HOPKINS, the Provost of the Faculty, delivered an address. He first expressed appreciation of the honour conferred upon him in being chosen as Provost for a full term. He said that it had been interesting to be Provost during the formative period of the Faculty, and he had had the added interest of having been chairman of the Research Committee. At a time when retirement from a position fell due, one naturally thought of what one had achieved during the period of office. He could not feel that he had achieved much. He had attended a number of meetings, and could at least claim that he had travelled quite a way to do so. As chairman of the Research Committee, he could say that the committee had done one or two things, but not a lot. With the small numbers it had not been easy, but one's thoughts did turn to the possibilities of research in general practice. During the last few years he had kept reasonably good records of his midwifery cases, and he regretted that he had not kept full records of the whole 30 years during which he had been in practice. When one read the reports of research in England, one felt that some progress was being made, and as the Faculty grew its members would really produce something worth while.

Dr. Hopkins went on to say that as general practitioners they saw their patients in their own homes, and could assess the effect of the home environment on the illness in question. They all knew the anxiety states due to home environment, the misfit marriages, the economic tragedy of too many children and too little money, the man who had "a couple too many" on the way home and took his many frustrations out on his wife when he arrived home. They had all tried to solve those insoluble problems; they could not re-sort husbands and wives or raise the wages or pay off the mortgages. Dr. Hopkins wondered whether they had failed in their duty by not trying to have included in the education of the teenager what to look for in a wife or husband. What was so delightful and irresistible at seventeen could be "a pain in the neck" at twenty-five. Dr. Hopkins said that such a course of action would undoubtedly be difficult; who was he to tell a teenager whom he should marry? Of course, many adjusted themselves, and so the solid members of the community developed. It took all sorts to make a world, and boys and girls varied greatly in what they looked for in a mate; some liked shape, some liked intelligence, some liked to dominate and others to be dominated, and so on *ad infinitum*. Dr. Hopkins said that he had given much thought to the problem, but the only conclusion he had come to was that education must aim at teaching people to think for themselves, so that they could make a better job of working out their own problems.

Dr. Hopkins went on to say that some 20 years previously he had told the superintendent of the hospital in Mackay that he thought all the women out-patients with very thick cards were unhappy at home. The superintendent had decided to test the theory, and for the next two or three out-patient days, when he had a patient with a very thick card, he would lean forward and ask in a confidential voice: "How are things at home?" Almost invariably the reply was, "Dreadful, doctor, he treats me something awful", or words to that effect.

Dr. Hopkins thought that much could be accomplished if a coordinating authority could be set up to arrange for general practitioners to investigate the cause and early stages of disease. The teaching hospitals and the laboratories would continue to study and produce the scientific information on the pathology and treatment, and the general practitioners would again take up the torch and follow the results. As Bean had said in America a few years previously: "The General Practitioner sees the patient 20 years after the surgeon has claimed a cure."

#### Naval, Military and Air Force.

##### APPOINTMENTS.

THE following appointments, changes etc. have been promulgated in the *Commonwealth of Australia Gazette*, No. 50, of September 12, 1957.

##### NAVAL FORCES OF THE COMMONWEALTH.

##### Citizen Naval Forces of the Commonwealth.

##### Royal Australian Naval Reserve.

**Resignation.**—The resignation of Ronald Gordon Elmslie of his appointment as Surgeon Lieutenant is accepted, dated 17th May, 1957.—(Ex. Min. No. 83—Approved 6th September, 1957.)

##### AUSTRALIAN MILITARY FORCES.

##### Australian Regular Army.

##### Royal Australian Army Medical Corps (Medical).

5/8054 Captain T. S. Samaha is transferred to the Citizen Military Forces, Royal Australian Army Medical Corps (Medical) (Western Command), 22nd June, 1957.

##### Citizen Military Forces.

##### Northern Command.

**Royal Australian Army Medical Corps (Medical).**—1/39208 Major W. D. Exton is appointed from the Reserve of Officers, and to be Temporary Lieutenant-Colonel, 28th May, 1957 (in lieu of the notification respecting this officer which appeared in Executive Minute No. 71 of 1957, promulgated in Commonwealth Gazette No. 38 of 1957).



## Eastern Command.

**Royal Australian Army Medical Corps (Medical).**—2/100752 Major R. D. Rotherfield is appointed to command 5th Field Ambulance, and to be Temporary Lieutenant-Colonel, 15th May, 1957. 2/126996 Lieutenant-Colonel T. J. Ritchie, B.D., relinquishes command 5th Field Ambulance, 14th May, 1957, and is appointed Assistant Director of Medical Services, Headquarters 2nd Division, and to be Colonel, 15th May, 1957. 2/127800 Colonel J. F. Sullivan, M.C., relinquishes the appointment of Assistant Director of Medical Services, Headquarters 2nd Division, 14th May, 1957, and is transferred to the Reserve of Officers (Eastern Command), 15th May, 1957. The notification respecting 2/206953 Major (Temporary Lieutenant-Colonel) T. M. Greenaway, which appeared in Executive Minute No. 52 of 1957, promulgated in Commonwealth Gazette No. 34 of 1957, is withdrawn. 2/206954 Major W. D. Sturrock is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 7th June, 1957. The provisional appointments of the following officers are terminated: Captains 2/67299 P. A. Stanton-Cook, 30th March, 1957, and 2/79316 F. H. Lang, 12th July, 1957. To be Captains (provisionally): 2/67299 Peter Alan Stanton-Cook, 1st April, 1957, and 2/79316 Francis Houston Lang, 15th July, 1957. To be Temporary Major, 1st July, 1957: 2/127881 Captain R. B. Geeves.

## Southern Command.

**Royal Australian Army Medical Corps (Medical).**—The provisional appointment of 3/101833 Captain F. W. Shine is terminated, 9th January, 1957. To be Captain (provisionally), 10th January, 1957: 3/101833 Francis William Shine. To be Colonel, 1st March, 1957: 3/50235 Lieutenant-Colonel (Temporary Colonel) B. T. Keon-Cohen. To be Temporary Lieutenant-Colonel, 19th July, 1957: 3/50211 Major P. Kaye.

## Central Command.

**Royal Australian Army Medical Corps (Medical).**—To be Captain (provisionally), 8th July, 1957: 4/32094 Gordon Manson Chambers.

## Western Command.

**Royal Australian Army Medical Corps (Medical).**—5/26544 Captain T. S. Samaha is transferred from the Australian

Regular Army, Royal Australian Army Medical Corps (Medical), 22nd June, 1957, with regimental seniority in accordance with Army seniority (30th April, 1956).

## Tasmania Command.

**Royal Australian Army Medical Corps (Medical).**—To be Major, 2nd July, 1957: 6/15251 Captain J. C. S. Officer.

## Reserve Citizen Military Forces.

**Royal Australian Army Medical Corps (Medical).**

**Northern Command.**—Honorary Captain M. V. Lansdown is retired, 30th July, 1957. To be Honorary Captains: Barry Edgar Farmer, 12th July, 1957, and Judith Ann Cleary, 15th July, 1957. The following officers are placed upon the Retired List (Northern Command) with permission to retain their rank and wear the prescribed uniform, 30th June, 1957: Majors C. W. K. Hardy and R. G. Orr, Captain E. W. Turner, and Honorary Captains M. Hoban and R. Nettleton.

**Southern Command.**—To be Honorary Captain, 8th April, 1957: Donald Alex Coventry. (Ex. Min. No. 88—Approved 6th September, 1957.)

## University Intelligence.

## THE UNIVERSITY OF SYDNEY.

## Medical Research Fellowships.

APPLICATIONS are invited for the following medical research fellowships for the year 1958:

Reginald Maney Lake Scholarship and Amy Laura Bonamy Scholarship for pathological research work. Anderson Stuart Fellowship, Marion Clare Reddall Scholarship and Joseph Goodburn-Smith Scholarship for research in any branch of medical science. Liston Wilson Fellowship for research in spastic paralysis or some closely allied subject. Sister Sanders Scholarship for part-time research

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED SEPTEMBER 21, 1957.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism .. ..	5(2)	1	1	1(1)	4(1)	..	1	..	13
Amoebiasis .. ..	1	..	16	..	..	..	..	..	17
Ancylostomiasis .. ..	..	..	..	..	..	..	..	..	..
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	..	..	..	..	..	..	..	..
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) .. ..	5(5)	..	..	..	..	..	..	2	7
Diphtheria .. ..	1	13(10)	..	..	1(1)	..	..	..	15
Dysentery (Bacillary) .. ..	1(1)	..	..	2(2)	..	..	1	..	4
Encephalitis .. ..	2	1	..	..	..	..	..	..	3
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	..	..	..	..	..	..	..	1
Infective Hepatitis .. ..	39(28)	10(2)	4(2)	1(1)	10(9)	1	1	1	67
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leptospirosis .. ..	..	..	4	..	..	..	..	..	4
Malaria .. ..	..	..	1(1)	..	..	..	..	..	1
Meningococcal Infection .. ..	5(2)	1(1)	3	..	..	..	..	..	9
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Polomyelitis .. ..	1(1)	..	..	..	..	..	..	..	1
Puerperal Fever .. ..	..	..	..	..	..	..	..	..	..
Rubella .. ..	..	61(43)	15(11)	9(4)	13(14)	..	..	1	104
Salmonella Infection .. ..	..	..	..	..	1(1)	..	..	..	1
Scarlet Fever .. ..	6(5)	9(7)	5(2)	1	5(1)	..	..	..	26
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	2(1)	..	..	..	..	..	2
Trachoma .. ..	..	..	..	..	4(3)	..	..	..	4
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis .. ..	23(21)	13(7)	9(4)	7(6)	4(1)	3(1)	5	1	70
Typhoid Fever .. ..	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne) .. ..	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

work in the prevention of diseases in children. Norman Haire Fellowship for research on sex, continuing and expanding work the nature of which is already being done in the Faculty of Medicine.

Fellowships are renewable for a second and, in certain circumstances, a third year. All fall due on January 1, 1958. All are to the value of £1252 *per annum* except the Sister Sanders Scholarship, which is to be determined.

Applications for fellowships for 1958 should be made to the Registrar, and will close on November 30, 1957. The fellowships for 1958 will be awarded in December, 1957. Application forms may be obtained from the Registrar's office. Regulations in regard to these research fellowships, with the exception of the Norman Haire Fellowship, may be seen in the 1957 Calendar, pages 495-499.

## Post-Graduate Work.

### THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

#### Week-End Course in Mental Deficiency.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a week-end course in mental deficiency, under the supervision of Dr. Patricia Kirton, and limited to 12 selected candidates, will be held at the Newcastle Mental Hospital, Watt Street, Newcastle, on Saturday, November 30, and Sunday, December 1, 1957. The programme is as follows:

Saturday, November 30: 9.15 a.m., introduction: "Classification and General Concepts of Mental Deficiency", Dr. Patricia Kirton; 10 a.m., demonstration of cases of pre-natal origin, Dr. Patricia Kirton; 2 p.m., demonstration of cases of para-natal and post-natal origin, Dr. Patricia Kirton; 4.15 p.m., discussion.

Sunday, December 1: 9.30 a.m., "Prophylaxis of Mental Deficiency", Dr. Patricia Kirton; 10 a.m., "The Rh Factor and Mental Deficiency", Dr. Peter Hendry; 10.30 a.m., "Neonatal Emergencies Resulting in Mental Deficiency", Dr. John Muller; 11.15 a.m., "Avenues for Training Mental Defectives, and the Mental Defective and Society", Dr. Patricia Kirton.

The course is limited to 12 selected graduates. The fee for attendance is £3 3s. Early written application should be made to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8.

## Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Dawes, Peter Douglas, M.B., B.S., 1954 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

## Notice.

### LONDON MEDICAL EXHIBITION.

THE 1957 London Medical Exhibition will be held from November 18 to 22 at the Royal Horticultural Hall, Westminster. A comprehensive range of drugs and medical specialties, surgical, medical and hospital apparatus and instruments, technical literature, research apparatus *etc.* will be on view. A programme of the latest medical films will be showing at all times during the exhibition. The exhibitors at the exhibition include approximately 120 leading manufacturers. Professional men and buyers from overseas are welcome, and invitations may be obtained by

writing to The Organizers, London Medical Exhibition, 194-200 Bishopsgate, London, E.C.2.

## Deaths.

THE following death has been announced:

WILLIAMS.—Albert Henry Williams, on July 10, 1957, at Waratah, New South Wales.

## Diary for the Month.

- Oct. 12.—Victorian Branch, B.M.A.: Country Branch Meeting.
- Oct. 14.—Victorian Branch, B.M.A.: Finance Subcommittee.
- Oct. 15.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- Oct. 16.—Western Australian Branch, B.M.A.: General Meeting.
- Oct. 17.—Victorian Branch, B.M.A.: Executive of Branch Council.
- Oct. 22.—New South Wales Branch, B.M.A.: Ethics Committee.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, 88 L'Estrange Terrace, Kelvin Grove, Brisbane, W.1): All applicants for Queensland State Government Insurance Office positions are advised to communicate with the Honorary Secretary of the Branch before accepting posts.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

## Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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